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MANAGEMENT

December
1955

Feature

Managing the Air Force Research and Development Program
By General Power

On The Cover

Lieutenant General Thomas Sarsfield Power USAF entered the Air Corps flying school in 1928, was commissioned a second lieutenant in 1929 and advanced through the grades to lieutenant general in 1954. Between 1929 and 1942, he served primarily with bombardment units except for occasional breaks while attending service schools. In April 1954, he became Commander of the Air Research and Development Command in Baltimore, Maryland.

FOR A COPY OF THIS HALLOCK ILLUSTRATION, SUITABLE FOR FRAMING, WRITE TO PUBLIC RELATIONS DEPT., AVCO DEFENSE AND INDUSTRIAL PRODUCTS, STRATFORD, CONN.

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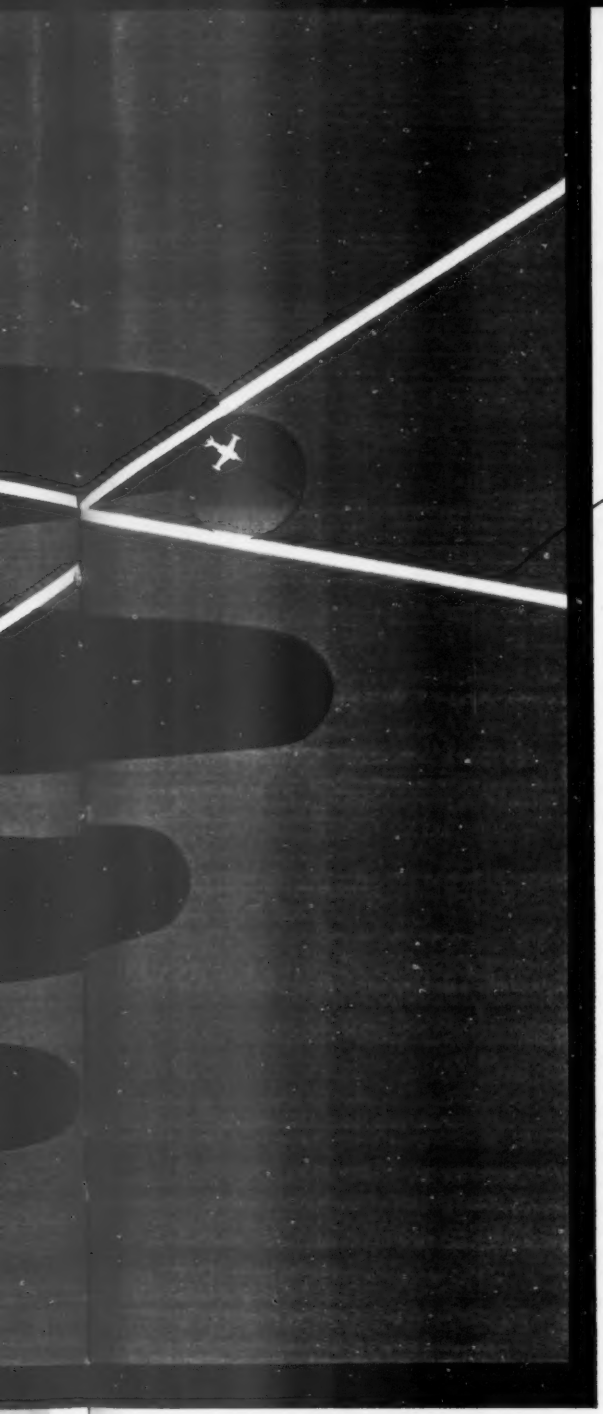

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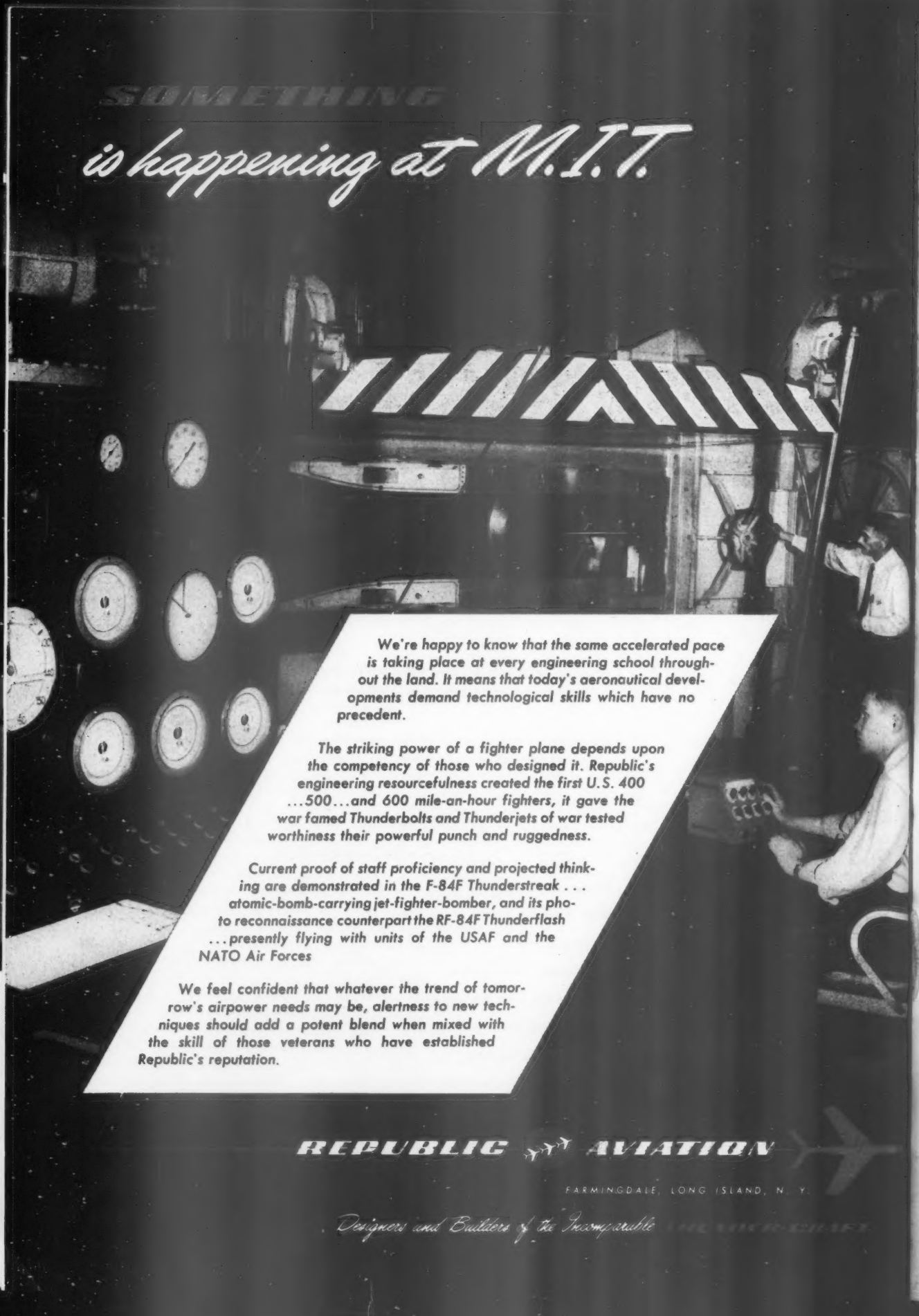
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Military Management Discipline Sparks ARDC Scientific Progress

By Lt. General Thomas S. Power, USAF
Commander, Air Research and Development Command

Managing the Air Force Research and Development Program

NEVER before in United States history has our future national security been so dependent upon today's scientific research and development.

Yesterday's wars, whether waged for defense or offense, revolved around concentrations of men and logistics requiring relatively simple strategy and tactics.

Even in World War II, the art and science of war were relatively simple. Masses of men faced other masses of men across battlefields. An aircraft carrying a scant 10 tons of bombs could effectively demolish a target only a few city blocks in size.

The commander with quantitative superiority in planes and men and materiel was usually assured victory. Then overnight, the concept of war changed.

On August 6, 1945, a single plane—the "Enola Gay"—circled high over the city of Hiroshima, Japan. A few seconds after the command "Bomb away" was given, most of the physical city that was Hiroshima disintegrated. A reported 78,000 human beings were killed. An estimated 37,000 were injured. Some 13,000 were reported missing.

Despite that tragedy, we entered, on that day, into an era both fearsome and wonderful—the atomic age. Research and development had brought forth a new weapon—one so powerful that it ended a war, yet a force which could be used to preserve peace.

Since that morning ten years ago, the entire art of warfare has been completely transformed. The application of modern science and technology to weapons and their uses made the change mandatory.

Military men are agreed that we won World War II by quantitative superiority. They also are agreed that the combined resources of Iron Curtain countries, measured in terms of quantity, present an imposing threat to our security. An obvious conclusion, therefore, is that we must be "qualitatively superior."

Basic Goal

Achieving and maintaining that superiority for the U.S. Air Force is the primary mission for which the Air Research and Development Command was organized as a separate, major air command in January, 1950.

To retain this superiority tomorrow means intensive air research and development today. But so complex, costly and technical are tomorrow's weapons that today's management of our research and development program must be effectively disciplined.

True, some of the products that flow from our laboratories are not weapons in the strict sense. A weather balloon, for instance, is not a weapon in itself, but its indirect value to the military is tremendous.

Without accurate weather reports our combat forces could not plan and conduct effective air operations.

Then again, our laboratories produce myriad by-products in the course of their research and development. Many of these by-products are of value both to the military and to our civilian populace. As such, they constitute a "bonus" for our taxpayers.

Whatever research and development is conducted throughout the command, we at ARDC are constantly aware of the fact that our combat forces must have effective weapons. If these weapons are to be effective, they must be superior in quality to those produced by the enemy.

Yet, many hardships and problems arise between the establishment of a military requirement and the development of combat-worthy equipment. We minimize them by closely managing the progress of any particular ARDC weapon system—from conception to blueprint to prototype to production and testing.

Weapon Systems Concept

Air research and development is built around what is known as the "weapon system" concept. A complete weapon system includes all related equipment, materiel, services, and personnel required solely for the operation of an air vehicle so that it becomes a self-sufficient unit of striking power in combat.

There is nothing new in this concept. ARDC has, however, injected a new factor—discipline. This factor involves the enforcement of stringent controls on all research and development projects. Such controls must be employed if we are to obtain maximum use of our resources.

Although we do schedule controls in ARDC, we still provide conditions under which scientists work most effectively — maximum freedom of inquiry and freedom from haste. While we cannot set a deadline for making important scientific discoveries, we can—and must—schedule support for such work.

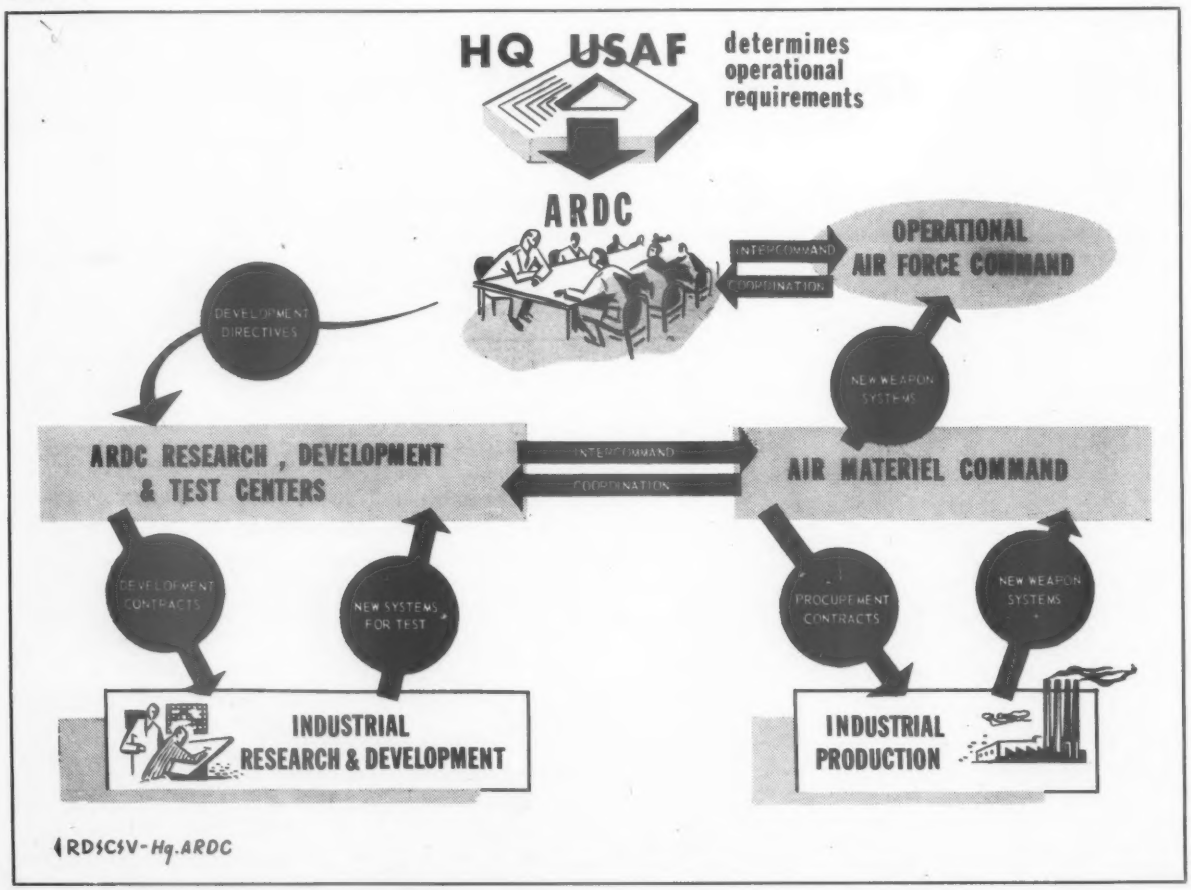
We are convinced that it is possible — and necessary — to plan, schedule, and manage research and development. We accomplish this by establishing a research and development "program structure."

Our current program structure consists of two major categories—technical and operational programs.

The technical program is limited to exploring and demonstrating new design concepts for the purpose of advancing the *state of the art*. It is divided into technical development and research. These two categories are further subdivided into a number of technical areas, such as missile guidance, propulsion, and communications.

The operational program involves the development of design concepts and their conversion into *useful Air Force materiel*. It includes all development which ARDC feels it is capable of accom-

Chart I



plishing within the existing *state of the art*. The major portion of the operational program consists of the development of specific weapon systems. The systems are classified according to their intended use. There are, for example, separate groups of weapon systems under development for use in strategic, tactical and air defense warfare.

An example of a strategic weapon system is System 101A, directed toward the achievement of improved high altitude bombing. The airborne portion of this weapon is designated the B-52. Presently, it is undergoing flight tests at the Air Force Flight Test Center. The complete weapon system, of course, includes other airborne sub-systems or ground support equipment.

Operational developments which have a more general military usage are classified either as supporting systems or simply as operational support equipment. An integrated complex of a wide variety of types of equipment and techniques which must work together ordinarily will be designated as a supporting system for management purposes. On the other hand, we manage as separate items individual equipment developments not entirely related to other equipment.

In the operational program, we set relatively rigid deadlines for the completion of development on weapons and related equipment. But in following a directed operational program, ARDC enjoys considerable freedom in making adjustments to sub-system plans, provided the over-all schedule is not compromised.

In the technical program we can seldom set hard-fast deadlines because here we approach the frontiers of scientific discovery.

Controlling the Development Cycle

To illustrate the role of management discipline in the development of a weapon, let us briefly follow a hypothetical military requirement from the point of origin to the acceptance of the completed system. A new weapon, on the average, requires five to seven or more years to complete after it has been initiated. (See Chart No. 1.)

Lt. General Thomas S. Power, center, here discusses a management problem with two of his executives, Colonel Milton E. Godfrey, Comptroller, ARDC, left, and Colonel Robert M. Grek, Director, Manpower & Organization, ARDC.

The initiation phase normally begins when a General Operational Requirement (GOR), prepared by Headquarters, USAF, is established. The GOR spells out the broad capability objectives of any weapon system desired by the Air Force.

The requirement itself derives from factors such as the international situation, Department of Defense and Air Force operational planning, and existing technical capabilities.

Upon receipt of the GOR, Headquarters, ARDC, establishes a development requirement describing and interpreting the needs to be satisfied. We then designate specific ARDC centers to work with industry in the preparation of general design studies.

The next step is the preparation of a development and test program to attain the objective stated in the development requirement. The proposed plan states the probable resources and the time required so that higher authority can decide whether the end product will justify the expenditure and, therefore, whether the effort is to be undertaken.

When approved, the plan serves as a basis for an operating schedule. It also provides other Air Force commands with the necessary information to prepare for operational suitability testing, personnel training, logistic support, and effective tactical use.

After agreement is reached on all known factors and phases of the development plan, a detailed directive is issued to one or more of ARDC's ten centers. Responsibilities as to budget, priorities, deadlines, etc., are listed. Various major contractors throughout the United States are given the performance specifications listing the desired military capability to be attained. They, in turn, prepare contract proposals. These are fully evaluated and decisions are made as to which of the proposals will be accepted.

After this, the actual contracts are written and the work is begun by industry.

Once contractors start working on new development items, ARDC exercises continuous surveillance over their activities. This constant liaison is necessary to insure that specifications are being followed and that the end products will be fully compatible with the other components being developed for the weapon systems involved.

Surveillance in these instances requires that numerous field trips between ARDC laboratories and the contractors' plants be made. It involves the initiation of certain new research and/or development projects to overcome difficulties encountered by contractors in the conduct of their development work.

Upon completion of the development projects, ARDC then submits the contractors' items to exhaustive tests and evaluation.

Many developments in new aircraft, missiles, thermo-nuclear work, etc., started during the Korean conflict, have now passed into the evaluation stage. Our test workload, as a result, has increased considerably.

It is this phase which requires the most extensive internal use of resources by ARDC. Not only must the complete weapon system be tested to determine compliance with the General Operational Re-

quirements, but each and every component of weapon and supporting systems must be fully tested to insure that it is compatible with every other component and that it meets Air Force specifications and performance requirements.

Many of the dollars spent in the development cycle are lost if the end product is not tested satisfactorily. Normally, this phase includes the use of ARDC test facilities; necessary engineering changes to improve the product; the preparation of detailed specifications for Air Materiel Command procurement; and finally, recommendation by ARDC that the end item be produced for acceptance in the Air Force inventory.

In the fall of 1951, a concept was developed which, from a management standpoint, has proved extremely valuable and economical to the Air Force in accelerating the phase-test cycle. Industry also has profited by being able to establish more favorable production schedules.

In effect, this concept controls production at a low level until actual testing indicates that the weapon system is basically sound. Control permits engineering changes to be incorporated into the production line and eliminates expensive modification programs after delivery to combat commands.

Conflicting though this may seem, controls and flexibility go hand-in-hand at ARDC. We give our commanders and technical officials every possible freedom to use their ingenuity in solving their problems. But we also must be able to cut off their work when future potentials do not justify the expenditures.

Broadly speaking, we utilize two types of management technicians. The first of these is a technical manager. Under that category would be a missile, nuclear weapons, rocket or fuel specialist, etc. The second is a resources manager—a specialist in the areas of personnel, facilities, supply, etc. Such specialization results in a capability to analyze and manage the whole research and development program.

A project engineer, who is a technical manager, is responsible for one or more research and development projects. Eminently qualified in his technical area, he insures that efficient and coordinated progress is made in accordance with established schedules.

The resource specialist concerns himself with a particular resource and its relation to a group of projects. He monitors the availability of these resources, sees that they coincide at all times with research and development work programs, and that maximum utilization of these resources are obtained.

After progress reports are analyzed and the counsel of management specialists considered, decisions are made as to whether work will be speeded up, delayed or terminated.

This type of military management decision differs little from that of a management decision in private industry. Basic requirements of scientific management are the same whether the project undertaken is private or public.

Outstanding management authorities are agreed on this point. In fact, in his address to the Second International Congress of Administrative Science, Henri Fayol said:

"All undertakings require planning, organization, command, coordination and control. . . . We are no longer confronted with several administrative sciences, but with one which can be applied equally well in public and private affairs."

Smoothly functioning at all levels in ARDC are highly qualified management men. Our commanders, project engineers, technical specialists, financial managers, et al., must possess both technical and managerial abilities. A similar degree of competence is required throughout the staff elements.

Effective control, so vital to the ARDC mission, receives strong and intelligent direction and leadership from our command headquarters. To secure this competence, careful selection is made of officers and civilian administrators being considered for assignment to headquarters. Similar screening is effected throughout ARDC's field organizations in the selection of key management personnel.

The Scope of ARDC Activity

Management men are aware that the current U.S. research and development effort is the most comprehensive scientific and technical endeavor ever attempted in this country. ARDC has been given a sizeable portion of the program which is, in turn, allocated to our ten centers widely dispersed throughout the country. (See chart No. 2.)

Although our field units are designated specifically as research centers, development centers, or test center, each one is engaged to some degree in all three activities. This is especially true in the development-testing area.

The command operates and uses a number of unique and specialized facilities in this field. These also are available to other government agencies as well as commercial contractors, thus eliminating duplication of expensive test facilities.

The extent to which research, development and testing are con-

CHRISTMAS GREETINGS

As "publishers to the Armed Forces" or, to be more precise, aides to the management-conscious members of the Armed Forces, we feel that we are part and parcel of this great combine of potential destructive force dedicated, not to aggression, but to the preservation of our Freedom.

General George Washington said, "To be prepared for war is one of the most effectual means of preserving peace."

We trust that our magnificently trained branches, through the vitally important maintenance of their present status, will be the guarantors of Peace.

On this anniversary of the birth of "The Prince of Peace," the publisher and staff of ARMED FORCES MANAGEMENT take this opportunity to wish each and every member, of all branches, of the Armed Forces a very joyful Christmas and a blessing-filled New Year.

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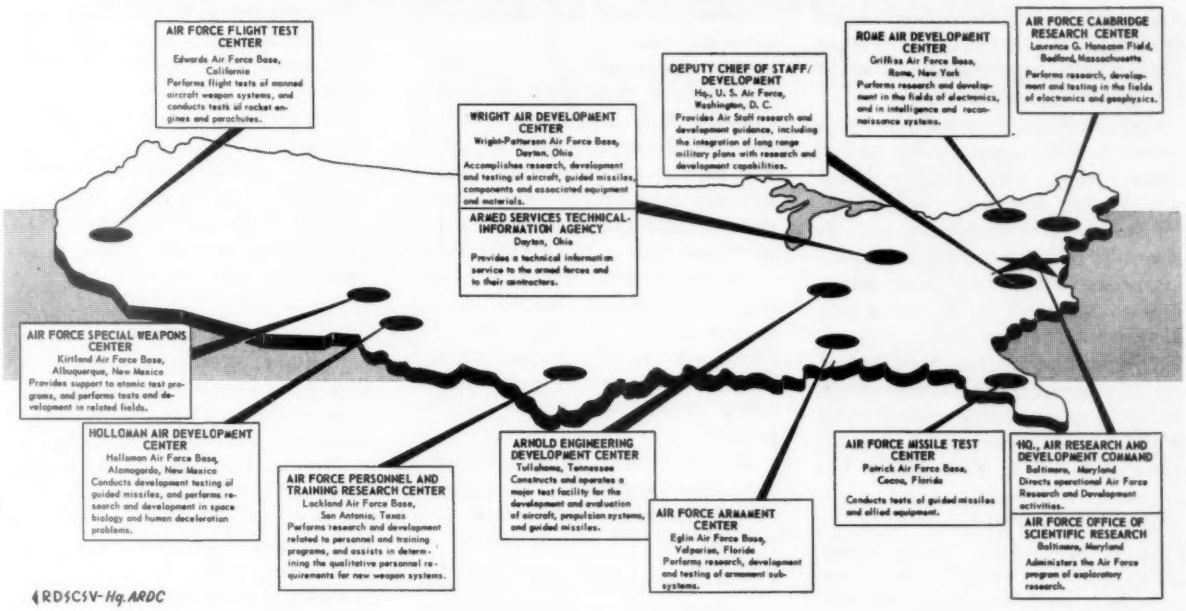
MAJOR AIR RESEARCH & DEVELOPMENT ACTIVITIES


AIR FORCE FLIGHT TEST CENTER
Edwards Air Force Base, California
Performs flight tests of manned aircraft weapon systems, and conducts tests of rocket engines and parachutes.
WRIGHT AIR DEVELOPMENT CENTER
Wright-Patterson Air Force Base, Dayton, Ohio
Accomplishes research, development and testing of aircraft, guided missiles, components and associated equipment and materials.
ARMED SERVICES TECHNICAL INFORMATION AGENCY
Dayton, Ohio
Provides a technical information service to the armed forces and to their contractors.
DEPUTY CHIEF OF STAFF/ DEVELOPMENT
Hq., U. S. Air Force, Washington, D. C.
Provides Air Staff research and development guidance, including the integration of long range military plans with research and development capabilities.
ROME AIR DEVELOPMENT CENTER
Griffiss Air Force Base, Rome, New York
Performs research and development in the fields of electronics, and in intelligence and reconnaissance systems.
AIR FORCE CAMBRIDGE RESEARCH CENTER
Laurence G. Hanscom Field, Bedford, Massachusetts
Performs research, development and testing in the fields of electronics and geophysics.
AIR FORCE SPECIAL WEAPONS CENTER
Kirtland Air Force Base, Albuquerque, New Mexico
Provides support to atomic test programs, and performs tests and development in related fields.
HOLLOMAN AIR DEVELOPMENT CENTER
Holloman Air Force Base, Alamogordo, New Mexico
Conducts development testing of guided missiles, and performs research and development in space biology and human deceleration problems.
AIR FORCE PERSONNEL AND TRAINING RESEARCH CENTER
Lackland Air Force Base, San Antonio, Texas
Performs research and development related to personnel and training programs, and assists in determining the qualitative personnel requirements for new weapon systems.
ARNOLD ENGINEERING DEVELOPMENT CENTER
Tullahoma, Tennessee
Constructs and operates a major test facility for the development and evaluation of aircraft, propulsion systems, and guided missiles.
AIR FORCE ARMAMENT CENTER
Eglin Air Force Base, Valparaiso, Florida
Performs research, development and testing of armament subsystems.
AIR FORCE MISSILE TEST CENTER
Patrick Air Force Base, Cocoa, Florida
Conducts tests of guided missiles and allied equipment.
HQ., AIR RESEARCH AND DEVELOPMENT COMMAND
Baltimore, Maryland
Directs operational Air Force Research and Development activities.
AIR FORCE OFFICE OF SCIENTIFIC RESEARCH
Baltimore, Maryland
Administers the Air Force program of exploratory research.

RDSCSV-Hq. ARDC

ducted in each center generates a major management problem for Headquarters, ARDC in controlling and coordinating our programs to prevent any possibility of wasteful duplication.

ARDC contracts for a larger part of its research and development programs than do other military departments. In Fiscal Year 1954, that total was approximately 80 per cent. Contracts ranged from the summer research effort of a single scientist to the operation of the entire technical facility of the Arnold Engineering Development Center, Tullahoma, Tennessee.

However, when we are convinced that research and development can be performed more effectively within the command, or where contracting for this work with private industry is not feasible, we conduct what is called "in-house" research and development.

This research and development can be performed only by an organizaton with day-to-day operating knowledge and background resulting from direct, immediate and continuing association with the interested agencies.

In-house research and development, incidentally, results in two invaluable by-products. Our managers develop sound judgment in applying results to Air Force operating problems. They also become better qualified to direct and coordinate our contractual work.

Each ARDC center is a separate, integrated and operational unit having its own commander and in most cases, operating its own installation. However, some of our centers share an installation with units of other Air Force commands. We are "tenants" for instance, at AMC's Wright-Patterson Air Force Base, Ohio, and at Griffiss Air Force Base, New York.

Tenant status for ARDC in these two instances is particularly advantageous for the expeditious coordination of research and development programs with materiel procurement activities of AMC.

The application of sound management procedures by no means is limited to our centers. They extend to our relations with the other members of the research and development "team."

The firm base upon which our research and development team is established is U.S. industry. Without the major contributions of this member of the team, our total air power would be ineffective. Only through the support of the aircraft and electronics industries, in conjunction with hundreds of other industries, can we continue to produce superior weapon systems.

Other members of this team include colleges, universities and non-profit institutions with which ARDC has contracted research and development; the Army, the Navy and numerous other non-Air Force agencies of the Federal Government such as the National Advisory Committee for Aeronautics and the Bureau of Standards; and the Atomic Energy Commission.

Major Air Force commands are also active participants on the team. These are the AMC which procures, supplies, and maintains the air weapons we develop; the Air Training Command which trains personnel to operate and maintain the weapons; and the operating commands which stand ready to use these weapons in the theater of operations.

I want to emphasize that ARDC is seriously interested in U.S. industry. I am convinced that one of the ARDC's management responsibilities inherent in producing superior weapons is to insure that private industry maintains and advances its capabilities to support total air power.

Manpower Management in ARDC

Effective manpower controls and programming procedures have been refined and tested in ARDC. In research and development, pro-

cedures have been established which identify manpower requirements and utilization with a specific project, thus providing a firm basis upon which to program and budget for personnel requirements.

Considerable progress has been made in achieving uniformity of organizational structures and administrative procedures in our center staff and support functions. As a result, many unnecessary supervisory activities have been eliminated. Lines of communications have been shortened.

One of the most productive of the management procedures in use today is that employed by the ARDC Manpower Management Review Team in determining the optimum organization and manning required at each center. Members of the review team, highly skilled in their technical areas, insure that the following ARDC criteria are satisfied:

- —Optimum effectiveness of operation
- —Maximum utilization of resources
- —Shortest practical lines of communication
- —Clear-cut staff relationships and responsibilities

Without these and other management techniques, we could not attain maximum utilization of the most basic and critical of all ARDC resources—manpower.

Approximately 38,000 personnel presently are authorized the command. The number is about equally divided between military and civil service personnel. In many ARDC activities, military and civilian personnel are used in the same type of work, as we strive for effective integration of the best military and civilian capabilities and skills.

Some of our jobs are purely military in nature, such as flight crews for test aircraft. Others are primarily civilian, as in the field of basic research. Availability of skills in either the military manpower pool or the local civilian labor market, of course, determines to some extent the ratio of military to civilian.

We also have a responsibility to the Air Force of maintaining a stateside reservoir of military personnel for overseas assignment, and to provide Zone of Interior assignments for overseas returnees.

Retention and management of technical personnel is one of the most serious and continuing problems in the command. Air Force research and development activities have received pin-point attention on this problem from various special committees and study groups, including the House Committee on Government Operations.

Almost without exception, findings were similar. Many of the groups discovered that the Air Force was unable to attract and keep skilled technical personnel in either its civil service or military positions.

A recent issue of a nationally-circulated magazine (U.S. News & World Report) underscored this fact. In part, the article stated:

> "Career men at the management level in the armed services, in fact, have been resigning at a near-record clip, often leaving to take advantage of higher executive pay in industry."

In attempting to solve this problem we, as a command, are not alone. In conjunction with Headquarters, USAF and other major air commands, we are constantly working to improve our personnel program through incentive awards, stability of assignment, restoration of certain "fringe benefits," and by adjusting differences in pay between industry and Federal employment.

Many words have been spoken and much text written in the controversy over military versus civilian management of research and development for the defense of the nation.

Personally, I feel that if military men are to be responsible for the effective defense of our country, they also must be responsible for managing the development of superior weapons with which to defend it.

It's as simple as that.

The Future

Military strategists are agreed that if an enemy decides to wage war on the United States, it will strike with startling swiftness.

Time and distance no longer are barriers. Supersonic aircraft have already bridged the barriers of oceans and continents. Time has been telescoped.

Survival or defeat in any future war will depend upon today's research and development of military weapons.

We in ARDC are contributing toward maintaining our world leadership in weapon systems. To continue to do so, our weapons must be qualitatively superior. Their retaliatory power must be far greater than that of any potential enemy's.

We will be able to maintain that superiority through effective management, and for the first time in world history, prove that a dynamic research and development program can be a positive deterrent to war and a permanent pathway to peace.

Flying Submarine Seen as Possibility; Defense Department Kept Patent Secret

An idea for a flying submarine equipped with water skis, the patent on which was kept secret for several years by the Department of Defense, has been announced by All American Engineering Co., Wilmington, Delaware.

The flying submarine, still only in the thinking stage of development, does not differ markedly in appearance from a standard swept-wing jet fighter. It utilizes two power plants, however — a jet engine with air intakes on the upper part of the fuselage for air operation, and a marine engine driving a small propeller at the rear of the craft for underwater propulsion. In flight, the marine propeller is retracted within the fuselage.

The water skis, known as a hydro-lift landing gear, can be retracted in flight, and allow the craft to land and take off smoothly. Wheels could be incorporated for land operation. The hydro-lift gear, described by the firm as the key to the successful operation of the flying submarine, is a reality and has been successfully tested by All American Engineering on several types of conventional aircraft.

What Management Means to Me—

This Month:

by Henry G. Mazlen

Chief, Statistical Services Division
USAF Medical Requirements & Stock Control Office

Management means to me an executive, his selection, development and training. What makes a good executive—family, environment, education, training? Probably thousands of books have been written on various facets of this problem; and many thousands more will be written as time goes by. In this brief discussion, it is desired to emphasize the training of *selected* employees for executive positions within the Federal establishment.

CRITERIA

Almost every man or woman who ever attained a position of recognized leadership in some field of specialization had a trait in common—imagination. Poor boy or rich, uneducated or possessed of a Ph.D.; the successful executive was a person who saw things others all around him did not see, in fact, *could not see*. What is this extra-sensory ability? Does everyone possess it or is it born with some and not with others? The *scientific* answer to this is that the ability to "see" with the mind as well as with the eyes is not necessarily a birthright; it can be developed by persistent *training* directed towards this specific objective.

CLUES TO EXECUTIVE ABILITY

Executives are the planners of business and industry. They know what they want, what to expect from their assistants and how to achieve the cooperation essential to success of the enterprise. Sound judgment and quick decisions are characteristic requirements. Good leaders are good talkers and good writers too. It is one thing to be opinionated and altogether another matter to be self-confident and convincing.

Those who have the ability to provide leadership to others are not easy to discourage; contrariwise, more often than not they are tenacious with respect to their objectives. Argumentation is not in an executive's repertoire; but this doesn't imply rejection of ideas from subordinates. In fact, good executives are quick to recognize and reward those who come forward with a show of creative imagination; the cornerstone of progress.

When we say that an executive is a "planner" we do not mean to create the impression that he is not also a *doer*. The truth is that creative potential goes hand-in-hand with energy and enthusiasm. This often results in expansion of the area of responsibility; the acceptance of new projects and the shouldering of additional burdens without complaint.

We often hear executives referred to as "positive" persons as opposed to "negative personalities." This does not mean winning of popularity contests. It does mean being attentive to the problems of others; the maintenance of a pleasant disposition which encourages one's associates to do likewise.

It means that we recognize that our success depends to a considerable extent upon others and that it invites disaster to entertain prejudices or to speak disparagingly about associates thereby undermining morale.

An executive must be proficient in at least one aspect of the operations of his organization. He may or may not be a professionally trained person himself; but he must be an expert in his particular specialty so that his acts and decisions will instill confidence. Most organizations today require the services of many subject matter specialists. It is not possible to master even a small percentage of these specializations which apply to any big concern. Here, the executive proves his knowledge of men in the process of selecting assistants for his management staff. Usually he looks for those traits in his assistants which he has found in his own self-analysis.

The personality of an executive does have roots which extend from childhood to maturity. Honesty and sincerity of purpose, industriousness and self-reliance as well as cooperativeness are such deeply-rooted traits. Examination of an applicant's schooling and past accomplishments can supply adequate information on these points.

A good executive must have an excellent memory; not alone for the details of business operations, but also for the names of people infrequently met. Good business habits require maintenance of current telephone numbers, addresses and similar information for prompt reference.

Some additional factors which should be considered in estimating executive potential are habits of dress, ability to administer supervisory responsibilities including the enforcement of discipline. In common practice, organizations have rules which must be followed to preserve order. The enforcement of discipline in a fair and impartial manner is very important to management.

Thus far, we have seen that executive potential goes hand-in-hand with ability to organize and manage; to delegate responsibility, train others into a dependable

team. Leaders do not have to be taken by the hand and led through every minute detail of an assignment; it is a very particular quality of *interest* which makes the most general instruction sufficient. There is a trait of forcefulness associated with executives in all fields of endeavor which stands sharply in contrast to those who lack this trait. Here too, it is one thing to be obstinate and altogether another thing to be tenacious of purpose which has sound judgment behind it. There are no timid executives, and many new ideas must be "put over" against opposition.

Most often, past performance is the most substantial index of executive ability and potential. After all, the record of accomplishment as a leader, supervisor, organizer and manager provides the most creditable evidence. Therefore, such testimony should constitute a primary background when selection of executive material is contemplated. Every organization should have some type of program for executive selection, training and development.

TRAINING

Once selected, a new record of accomplishment must be compiled. Each new assignment is a test of all the criteria which we have discussed up to this point. Training after selection involves a carefully phased program of on-the-job management. It takes the perspective of experience to know just how long training must continue. As a rule, however, individual executive achievements will begin to be noted after an assignment is made. Thus, a selection will be validated or invalidated based upon *performance*.

The worst thing management can do is to stifle initiative and frustrate the normal mundane ambitions of capable employees. Of course, an organization must always have "room at the top" for deserving employees. If an organization is too tightly knit to allow for employee advancement the risk of stultification of initiative must be faced by top management. Any organization is a team. It must train and function at all times under the management concepts of efficient teamwork. It must progress towards its objectives smoothly, economically and with high employee morale. If there is no room for advancement, other practices such as incentives and awards for superior accomplishments must be given adequate support to prevent the team from breaking up. Within the Federal civil service, employees transfer, retire and resign to go into private employment or into business by themselves. Vacancies are created which are gaps in the team framework. And even though "no one is indispensable", an exceptional employee may not be easy to replace.

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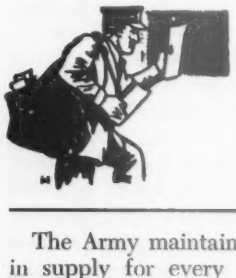

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The Army maintains one soldier in supply for every 1.04 men in combat.

The enlistment of Negroes as soldiers was authorized by President Lincoln August 25, 1862.

Dix Safety Record

Fort Dix, N.J.—Not one soldier or civilian has been killed while riding in government vehicles operated by Fort Dix during the past six years, safety officials reported today.

Railroads Will Put Reservations Into Big Computers' Hands

To coordinate traffic on their various lines, some railroads have turned to electronic computer systems. Now, three of them are taking this concept one step further. The Santa Fe, New Haven, and New York Central railroads plan to tie in within a year to a coast-to-coast electronic network for passenger reservations.

Teleregister Corp., Stamford, Conn., will build and rent the network to the railroads. Its president, S. J. Sindeband, says other roads may join the system.

Eventually, he hopes, all forms of transportation will be linked by a nationwide passenger reservations network. His company already has built a relatively simple reservations network for airlines.

Within seconds, a passenger will find whether his reservation can be accepted. And if the reservation can't be made, the machine will suggest alternative reservations that are still open.

By Rear Admiral John D. Hayes, USN, Ret'd.

Philosophers, Principles and Naval Organization

Conclusion

In last month's article the author identified certain principles of military organization, administration and management. One of these was Dualism, the formal separation of the functions of purpose from those of support. In this final part, the organization of the U. S. Navy and its task-type system will be discussed as an illustration of dualism.

The Navy's Task-Type System

It will be necessary first to point out some of the basic differences in army and navy organization. The air force cannot be considered as it has little organizational history. The differences in the army and navy setups come from the nature of the mediums in which they work, i.e., land and sea. Army organization is built around the individual fighting man. It requires a close connection between logistics and tactics and between administration and operations right up to the firing line. This has been accomplished by unifying direction through the general staff and by separating function through combat arms and technical services. In the navy, it is the ship that does the fighting. A ship is instantaneously responsive to its commander, while its function is provided for in its design. A ship must be built, outfitted and manned before it can be used. When it fights, everyone in it concentrates on fighting alone. Naval actions up to now have been of relatively short duration. Some wit has said that naval warfare consists of long periods of boredom and short periods of intense fear. In any case, logistics and tactics, administration and operations, combat and service, can be definitely separated in time. One follows the other. Therefore the functional categories of purpose and support can be definitely separated within the organizational structure.

This dualism in organization is best portrayed by the U. S. Navy's task forces which in World War II became the admired tool of fast moving warfare. These task forces were part of the task-type system by which the Navy organizes its fleet. This task-type system is not generally understood despite the growing tendency to loosely use the phrase *task force* as a label. What the task-type system means in essense is that the commander of every navy ship works for two bosses. He is under the operational control of his task commander and the administrative control of his type commander. The type commander is responsible for the accomplishment of a mission or task assigned. He is given the means to do this by being assigned ships and aircraft units from type commands by a common superior. His job is to contribute to the purpose of the navy, to deter or defeat an enemy at sea.

This organizational dualism of purpose and support goes through the whole naval structure as Chart II shows. First there is the civilian economy and the military establishment. In the Navy Department there is the Office of the Chief of Naval Operations on the one side and on the other the Executive Offices of the Secretary which include such offices as that of the Comptroller, Naval Material, Naval Research and the Bureaus. The Navy itself is divided into its Operating Forces and its Shore Establishment. In the Operating Forces in Atlantic and Pacific there are the task fleets such as the Sixth Fleet in the Mediterranean and the Seventh Fleet in the Far East. There are also the type commands of the Atlantic and Pacific Fleets such as Carriers, Battleships and Cruisers, Destroyers, Fleet Air Wings, Service Force, Mine Force and Fleet Marine Force. Each ship is permanently in a division or squadron of its type. In task work, combat ships and aircraft are assigned to fast carrier, anti-submarine, or amphibious forces, groups

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and units. Service ships make up the similar mobile support components. There is organizational dualism within the ship itself. The engineer officer is responsible for stability and motive power, for maintaining a mobile fighting platform while the gunnery or air officer fights the ship.

These nice distinctions do not always hold up in practice. Tasks commands have always had to concern themselves with one form of support, fuel. Now, with mobile support of all kinds furnished at sea and ships operating for long periods away from their bases, task commanders find themselves involved in many more logistic responsibilities. Submarines seldom operate with other types so Commander Submarines usually perform both as a task and a type commander. An amphibious commander has a hard time telling when his navy tactical function ends and his ground force logistic function begins.

On the other hand, the navy's experience with dualism has been helpful with its new activities, especially those of research. The principle of dualism has enabled the navy to afford its scientific personnel both freedom and authority without loss of naval purpose or direction. It would seem that, with ground warfare becoming more mobile and its weapons more complicated, the separation of the functions of purpose and support in the Army is becoming more noticeable. Organizational dualism has already been introduced into the top echelons of the Department of the Army. There may be other examples of it that are better known to Army readers.

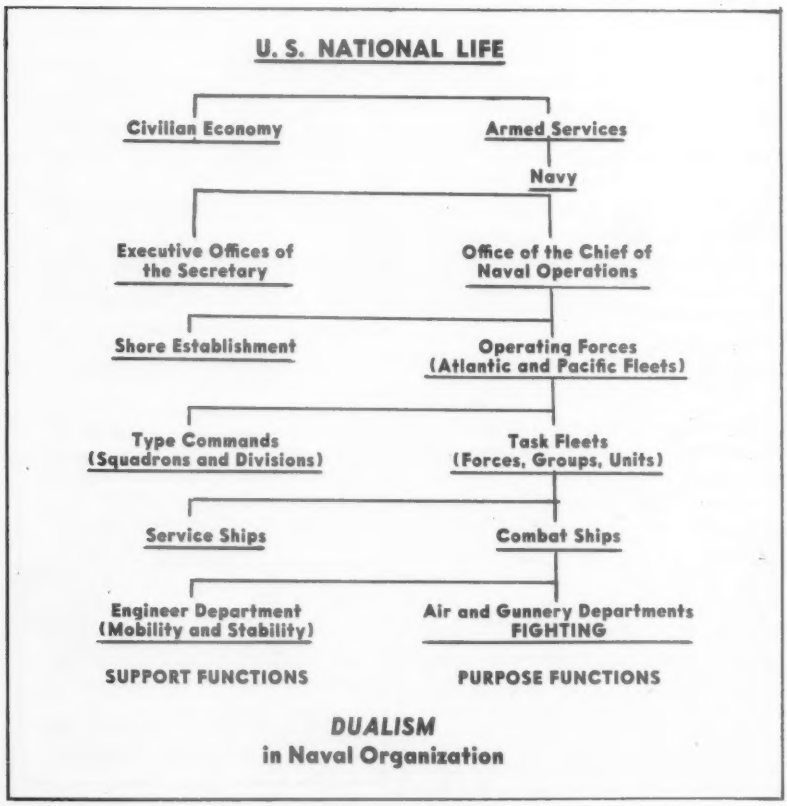
Air force organization is built around the airplane as the navy's is built around the ship. Air tactical operations are faster moving and of shorter duration than operations in the other two media. For this reason much of the task-type concept is being adopted, especially in the Strategic Air Command. Evidence of the separation of purpose and support is now greater in air warfare than it is in land or sea warfare. Foreign bases mean to the air force what they once meant to the navy when Mahan wrote about them. Now, the navy with its mobile support is depending less and less on overseas bases. All the oceans have become the U. S. Navy's Zone of Communications. The sailor is learning to integrate logistics with tactics as the soldier has always done. This is the reason for the present stress on logistics within the naval service.

Personnel of the army and air force ought to study the organization of the navy for another important reason. Today all of the armed services must be ready for war at its outbreak. This has always been required of the navy. It has always had to do what the entire Defense Department must do today—maintain itself strong and ready in the political atmosphere and under budgetary conditions of peace. The U. S. Navy during the period from 1881 to 1941 went from almost nothing to the biggest in the world. This growth took place during peace, interrupted only by two short wars. During this period, it was logistics—building, outfitting and training—that took most of the attention of its personnel. This had to be done under the financial restrictions of peace rather than under the stimulus of war's demands.

The U. S. Army, prior to 1946, never had the experience of maintaining a large establishment on a war footing during peace. Preparation in peacetime was always based on the assumption of rapid build-up after war had either started or was imminent. The conditions which allowed this are no longer present in the world. That is why the army and air force can learn much from a study of the navy's organizational history and especially from its organizational mistakes made during the past two generations.

The U. S. Navy's organizational structure needs some attention, too. Many officers view with alarm its growing tendency to move ashore, the growing size of its shore-based activities. One of two things happens to a sailor too long on the beach. He loses the purpose for his existence or he gets in trouble. The nature of a ship limits the size of the organization within it. Everybody and everything on board must be worth its cubic displacement.

Chart II



DUALISM
in Naval Organization

But put a navy outfit ashore and it grows like a weed if not controlled. Naval bases in the forward areas in World War II tended to become rat races of building huts to house men who built more huts to house more men, usually while the war was moving away. The ideal naval base would consist of an anchorage, a fighter strip and a place on the beach to drink beer. Everything else would be afloat.

Reorganization to meet these desired conditions is not necessary. Organizations are primarily people and abrupt changes in them are always bad for some people get hurt and others become afraid. Management consultants now shy from wholesale reorganization. Instead they advise the practice of drawing up the ideal organization chart and of being sure, whenever any minor change is possible, that such change be made in the direction of the ideal.

Conclusion

In summary, the military profession in the United States is involved in a new social science, that of equating the demands of national security with the ability of our economy to meet these demands. Today it is faced with the problem of managing big enterprises. Industry was faced with this problem a few decades ago and produced a group of thinkers who brought out a philosophy and literature of industrial organization. Until a literature on military administration appears, military people ought to become acquainted with these philosophers and learn to abstract their own versions of the principles they defined. Naval organization offers a profitable field for this study because the problems which all services have today are similar to the kind the navy has always had—building and maintaining a large and ready establishment in the face of peacetime restrictions.

Insuring the security of the United States is no doubt the most rewarding profession that a man can have. However if military people in this country are to retain control of their own destiny, if they are to have the confidence and freedom of action which they have always enjoyed, then those among them charged with logistics, the support functions, will have to rise to new heights. It is in the field of logistics where the real challenges are today, where the creative thinking is needed.

It has been in facing up to challenges, no matter how difficult or diverse, that has given the United States the most efficient and unselfish professional military group since the days of the Roman centurions. It is up to the present membership to see that the United States continues to be so fortunate.

Ten Commandments of Good Communication

As a manager, your prime responsibility is to get things done through people. However, sound your ideas or well-reasoned your decisions, they become effective only as they are transmitted to others and achieve the desired action—or reaction. Communication, therefore, is your most vital management tool. On the job you communicate not only with words but through your apparent attitudes and your actions. For communication encompasses all human behavior that results in an exchange of meaning. How well you manage depends upon how well you communicate in this broad sense. These ten commandments are designed to help you improve your skills as a manager by improving your skills of communication—with superiors, subordinates, and associates.

1. **Seek to clarify your ideas before communicating.**
The more systematically we analyze the problem or idea to be communicated, the clearer it becomes. This is the first step toward effective communication. Many communications fail because of inadequate planning. Good planning must consider the goals and attitudes of those who will receive the communication and those who will be affected by it.

2. **Examine the true purpose of each communication.**
Before you communicate, ask yourself what you *really* want to accomplish with your message—obtain information, initiate action, change another person's attitude? Identify your most important goal and then adopt your language, tone, and total approach to serve that specific objective. Don't try to accomplish too much with each communication. The sharper the focus of your message the greater its chances of success.

3. **Consider the total physical and human setting whenever you communicate.**
Meaning and intent are conveyed by more than words alone. Many other factors influence the over-all impact of a communication, and the manager must be sensitive to the total setting in which he communicates. Consider, for example, your sense of *timing*—i.e., the circumstances under which you make an announcement or render a decision; the *physical setting*—whether you communicate in private, for example, or otherwise; the *social climate* that pervades work relationships within the company or a department and sets the tone of its communications; *custom and past practice*—the degree to which your communication conforms to, or departs from, the expectations of your audience. Be constantly aware of the total setting in which you communicate. Like all living things, communication must be capable of adapting to its environment.

4. **Consult with others, where appropriate, in planning communications.**
Frequently it is desirable or necessary to seek the participation of others in planning a communication or developing the facts on which to base it. Such consultation often helps to lend additional insight and objectivity to your message. Moreover, those who have helped you plan your communication will give it their active support.

5. **Be mindful, while you communicate, of the overtones as well as the basic content of your message.**
Your tone of voice, your expression, your apparent receptiveness to the responses of others—all have tremendous impact on those you wish to reach. Frequently overlooked, these subtleties of communication often affect a listener's reaction to a message even more than its basic content. Similarly, your choice of language—particularly your awareness of the fine shades of meaning and emotion in the words you use—predetermines in large part the reactions of your listeners.

6. **Take the opportunity, when it arises, to convey something of help or value to the receiver.**
Consideration of the other person's interests and needs—the habit of trying to look at things from his point of view—will frequently point up opportunities to convey something of immediate benefit or long-range value to

him. people on the job are most responsive to the manager whose messages take their own interests into account.

7. **Follow up your communication.**
Our best efforts at communication may be wasted, and we may never know whether we have succeeded in expressing our true meaning and intent, if we do not follow up to see how well we have put our message across. This you can do by asking questions, by encouraging the receiver to express his reactions, by follow-up contacts, by subsequent review of performance. Make certain that every important communication has a "feedback" so that complete understanding and appropriate action result.

8. **Communicate for tomorrow as well as today.**
While communications may be aimed primarily at meeting the demands of an immediate situation, they must be planned with the past in mind if they are to maintain consistency in the receiver's view; but, most important of all, they must be consistent with long-range interests and goals. For example, it is not easy to communicate frankly on such matters as poor performance or the shortcomings of a loyal subordinate—but postponing disagreeable communications makes them more difficult in the long run and is actually unfair to your subordinates and your company.

9. **Be sure your actions support your communications.**
In the final analysis, the most persuasive kind of communication is not what you *say* but what you *do*. When a man's actions or attitudes contradict his words, we tend to discount what he has said. For every manager this means that good supervisory practices—such as clear assignment of responsibility and authority, fair rewards for effort, and sound policy enforcement—serve to communicate more than all the gifts of oratory.

10. **Last, but by no means least: Seek not only to be understood but to understand—be a good listener.**
When we start talking we often cease to listen—in that larger sense of being attuned to the other person's unspoken reactions and attitudes. Even more serious is the fact that we are all guilty, at times, of inattentiveness when others are attempting to communicate to us. Listening is one of the most important, most difficult—and most neglected—skills in communication. It demands that we concentrate not only on the explicit meanings another person is expressing, but on the implicit meanings, unspoken words, and undertones that may be far more significant. Thus we must learn to listen with the inner ear if we are to know the inner man.

—Prepared by the staff of the Executive Communication Course, American Management Association.

Army Utilization of Enlisted Management Personnel

By Corporals Leroy Grossman and Morton Peltzman

Corporal Grossman received his B.S. degree in mechanical engineering from the University of Illinois. After a year of law school, he joined the industrial engineering department of the Ford Motor Company.

✦

Corporal Peltzman received a B.S. degree from Illinois Institute of Technology, and an M.B.A. degree from the University of California. Prior to his induction into the Army, he worked in the industrial engineering department of North American Aviation, Inc. In addition to his Army duties, he is a lecturer in industrial management for the University of Maryland.

General J. Lawton Collins, former Army Chief of Staff, emphasized the importance of saving manpower and resources when he declared, "One of the basic tenets of Communism has always been that our American way of life could not survive unusual economic stresses; and that if we succumbed to bankruptcy—economic defeat—their purposes would be accomplished as surely as if they had defeated us on the battlefield. When we save dollars and resources we contribute as much to the defense of our way of life as if we had fired a shot on the battlefield in defense against Communist aggression."

In keeping with the Army's overall objective of constantly improving its efficiency and effectiveness, a formal program for utilization of professional personnel was instituted. Army Special Regulation 615-25-11, dated 7 August 1952, authorizes the classification and assignment of enlisted Scientific and Professional Personnel (commonly referred to as SPP's), based on education and/or experience prerequisites. The flexibility of the SPP Program is advantageous to both the Army and the enlisted specialist. The Army gains from a more effective utilization of scarce manpower. The SPP gains from the professional experience of his Army assignments.

While the SPP program covers fields embracing engineering, chemistry, physics, and other sciences, this article is devoted to the much smaller area of Army utilization of enlisted management personnel.

Typical of the many Army installations using enlisted management personnel is Edgewood Arsenal, Army Chemical Center, Maryland. The prime mission of Edgewood Arsenal is the manufacture of chemical agents, materials, munitions, and protective devices.

SPP's with management backgrounds are assigned to the headquarters for duty in the industrial engineering office. In order to qualify for SPP assignment, an industrial engineer must currently possess a BS degree plus two years of experience, or a master's degree; a mechanical engineer currently must have a BS degree plus three years experience, or a master's degree. The current strength of eight enlisted personnel represents an aggregate of thirty-four years of college education. It also represents twenty-six years of varied industrial experience in such fields as time study and incentives, methods engineering, plant layout, production planning and control, materials handling, job evaluation and merit rating, cost accounting, manufacturing processes, and statistical quality control.

The mission of the industrial engineering office is: to study the physical layout of production buildings and facilities; to analyze manufacturing methods, processes, and procedures to develop production time standards; to develop flow

charts and recommend rearrangement or modification of equipment to improve the rate of production; to implement the cost accounting system used in maintenance operations; to perform special industrial engineering studies as required, and to coordinate the Work Simplification Program and the Management Improvement Program of Edgewood Arsenal.

To accomplish this assigned mission, the specialists emphasize management activities through the Work Simplification Program. The planning, orientation, and follow-up phases of work simplification are coordinated and implemented by specialist enlisted men. A plan is now under consideration to utilize specialists at the operating level, to expedite the incorporation of work simplification techniques and to enhance the value of the work simplification training.

Specialists are often called upon to undertake management projects in a variety of fields. Once a project is begun, data is carefully collected and analyzed. After the analysis, pertinent information is summarized and submitted for evaluation by higher authority.

One example of how Edgewood Arsenal has obtained greater production efficiency through the use of specialists occurred in the manufacture of colored smoke grenades. A materials handling study revealed that smoke grenades were being handled individually and that four different types of containers were being used to transport grenades.

It was proposed that a single standard container be used, thus eliminating operations which transfer grenades from one type of container to another. The recommended container, designed by an enlisted specialist, holds thirty-five grenades in an upright position. Individual grenade handling would be eliminated, and units of thirty-five grenades would be processed through the manufacturing cycle. The analysis was submitted, evaluated, and adopted as proposed. Because of this study, over $6000 of annual funds have been conserved for utilization elsewhere.

The management functions of the industrial engineering section broaden the experience and further develop the professional careers of the enlisted specialists. Edgewood Arsenal activities include facilities for chemical agent production, a machine shop, a protective equipment factory, munitions production lines, inspection operations, and maintenance operations. A rotational plan is currently underway to transfer specialists from one type of Arsenal activity to another. This plan not only will benefit the specialist by providing a variety of job experience, but will assure the organization of a steady supply of fresh and challenging ideas.

Proper utilization of manpower and resources is a basic weapon in the fight against Communism. It is through such far-sighted planning as the Army's Scientific and Professional Personnel Program that efficiencies in the armed forces can be instituted at the operational level. The proper use of enlisted management personnel will result not only in good manpower utilization, but in a progression of economies, since such personnel will point the way toward even greater efficiencies and economies.

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New Gas Turbine Soon to Be Tested

Washington (AFPS)—The Navy shortly will test the most powerful gas turbine engine ever installed in one of its small craft.

The engine, called the "Jupiter," weighs only 1,000 pounds, which is one-quarter the weight of a comparable internal combustion engine, but it develops 500 hp. Previous gas turbine engines used in small craft developed 200 hp.

The Bureau of Ships will supply a 40-foot personnel boat to test the engine at San Diego in December. The Navy said it will use data obtained from this experiment to decide on wider applications of the gas turbine.

The Jupiter was developed by the Solar Aircraft Co. of San Diego. It is described as lightweight, easily maintained, adaptable to many fuels and easy to start even at very low temperatures. It is a variable speed engine.

December Birthdays
Inspector General Dept., 13 December 1777

NEWS and ACTIVITIES

Message to the Members of AFMA

Today we face a challenge in the management of our affairs in the Department of Defense. There are increasing demands for reduction of expenses in face of increasing workloads. We can either rise to meet the challenge or declare ourselves incapable of further improving our management. I, for one, hope we make the choice of demonstrating to the Nation what we can do to capitalize on the tremendous efforts the services have made to increase our managerial abilities. This means retaining and even increasing the combat potential of all the services and branches.

The AFMA as an organization and we as members have an unprecedented opportunity to prove our worth to the Department. The AFMA can and should be an increasingly important source of knowledge of new developments in management. By putting into practice what we learn, we can do our part to keep combat potential to a maximum.

Weldon T. Ellis, President

HEADQUARTERS The Board of Directors accepts with sincere regret the resignation from the Board, of Major General Lawrence R. Dewey, Assistant Comptroller of the Army and Vice President of AFMA. His active interest and participation, and his unfailing cheerfulness were most welcome. His new assignment means a real loss to the Association. Mr. Edmund Dwyer has been appointed Vice President and will act as Chairman of the AFMA meetings while Mr. Ellis is serving with the Congressional Committee studying manpower utilization in the Federal Government.

Tom Kouzes, our Executive Secretary has been appointed a Professional Lecturer in Business Administration at George Washington University, D. C., and is teaching a graduate course on Administrative Analysis and Program Review.

Margaret Moore, as a Navy representative, attended September 14-16 a conference of the Association for Computing Machinery at the University of Pennsylvania.

She will preside October 20-23, as Chairman at the South Eastern Regional Conference of Business and Professional Clubs at Charleston, S. C.

WIESBADEN, Germany—Colonel James H. Price, Wiesbaden Area Command and 7100th Support Wing Commander, accepts the charter at the first official meeting of Field Chapter 20, Armed Forces Management Association from Mr. Tom A. S. Murray, acting president of the newly formed chapter.

Fifteen charter members were present at the meeting.

CHAPTER NEWS

Baltimore Chapter held its October meeting at the Chemical Corps Materiel Command. The meeting was an open-forum discussion of a case history of the operation of the Industrial Fund at a certain arsenal. Many interesting solutions to the problems presented were suggested.

Hawaii Chapter held a dinner meeting on 15 September with Mrs. Nesta Gallas, Personnel Director for the City and County of Honolulu as guest speaker. Her subject matter on personnel management problems and current management improvement efforts in the activities of the City and County departments proved highly interesting. Major problem areas discussed were recent legislative changes; past attempts to pattern after the federal system which is not necessarily adaptable to activities of a much smaller scope; adjustment of functions of the Civil Service Commission; the Classification and Wage System; and emphasis being placed on the field of management improvement, primarily through the use of an internal committee.

Infantry Center Chapter, Fort Benning, Georgia, held its September meeting on the 13th. A business meeting was held before the dinner, following which Mr. W. H. Glenn, President of the Nehi Corporation discussed the organizational growth and present structure of the Nehi Corporation, stressing their progressive business practices. The chapter has planned as speakers for future meetings: the Honorable George Andrews, member of Congress from Alabama; General Ernest A. Barlow, (Dep. C. G. The Infantry Center); Brigadier General Robert L. Cook, A/C, TIS, and Colonel F. R. Zierath.

National Capital Chapter. The Personnel Utilization Division has scheduled a discussion for January by Army, Navy and Air Force representatives on "Career Development for Civilians in the Military Services."

Ranier Chapter started off in a big way with their first formal meeting in August. Walter H. Kee, Assistant to the President of Boeing Airplane Co., Seattle, was guest speaker. In 1950 Mr. Kee estab-

AFMA's
NIGHT BEFORE CHRISTMAS
by Mary M. Mulford with apology

'Tis the night before Christmas and through the Association
It seems like nothing is stirring, but to my elation
Each Board member's work is piled high with care
In hopes they may bring *here* closer to *there*.

Bob Dewey, temporarily assigned Don's chair
Contributes his all to every affair.

Larry Hoelscher rarely gets any sleep
Planning a Journal we'll all proudly keep.

Every inch of Ed Dwyer's handsome shoulders
Are pushing the wheels of a program which smoulders,

Benton Bray is organizing for many an Award,
Members not trying for points must surely be bored.

Tom Kouzes coordinates all ac-ti-vi-ties,
A most ardent worker he saves many fees.

Maggie Moore's eagle eye on the By-Laws and Constitution
Certainly offers a great contribution.

On Publicity Fred Harrison has worn himself out,
Now John Ford is following in the same route.

When up rushed Carl Freedman, who guards the money,
If problems weren't so serious he would really be funny.

Howard Cloud and Freddie struggled with membership dues,
From them Esther Campbell is taking some cues.

Esther now holds the Administrative post,
To control who needs what, when, where, and most.

Harvey Brown's just starting his special line,
When he really gets going watch his star shine.

Within Defense Agencies the Chapters have encouraged
Fraternity, exchange of ideas, and that concepts be merged.

And lo' in our midst we delight to behold
Mary Mulford disseminating news from the fold.

Then away to their duties all flew in a flash,
Each attacking his problem with renewed dash.

The Chapters before their astonished eyes
Had piled to a very impressive size.

And as the Board watched the records unfold,
The vast progress of each Chapter was told and retold.

With a leader so eager, determined, and zealous
I knew in a moment it must be Don Ellis.

More quickly than winking his helpers they came,
And he whistled and shouted and called them by name.

Now Hoelscher! Now Kouzes! Now Bray and Dwyer!
On Freedman! On Mulford! On Campbell and Moore!

Through our Federation and all of its Chapters
Let understanding and coordination ring through the rafters.

So around through the country the helpers they flew
Planning meetings, and conferences and seminars too,

Membership campaigns, more benefits, good relations,
And above all solid, working organizations.

I sat in my chair and was turning around
When into the Pentagon Don came with a bound.

He had plans for an Annual Conference so great,
For the details and specialties no one can wait.

With a wink of his eye and a twist of his head,
The broad specifications quickly he read.

He spoke not a word but went over all work,
Reviewed all ideas, then turned with a jerk.

And laying a finger aside of his nose,
And giving a nod, the best ones he chose.

Then up he sprang, to his teams gave a whistle
And away they all flew like the down of a thistle.

Exclaiming to AFMA when they drove out of sight,
Happy Xmas to all, our New Year looks very bright.

---

lished the Management Development Program for the personnel within the Boeing organization. He presently holds the position of National Secretary-Treasurer of the American Society of Training Directors. Results of their election: President, Henry Vanderwarker, Chief, Management Training at McChord; V. P. and Chairman of the Program Committee, Scott Kizer, Chief, Program Review and Analysis Division, Comptroller's Office, Ft. Lewis; Treasurer, Jack Mashaw, Management Analyst, Comptroller's Office; Secretary, Ferrin Hoxsey, O/CS, G3, Ft. Lewis. Board of Directors, Wayne Gardner, Chairman, Arrangements Committee; Gil Baker; Dora Merrick, Chairman, Publicity Committee; Jim O'Reilly; Norman Johnson; Joe Underwood, Chairman, Membership Committee; and Eugene Matkin. The September meeting was scheduled to be held at the Madigan Army Hospital and the Chapter is planning an intensive program.

San Francisco Bay Area Chapter election results: Bernard Kahn, President; Norman Bader, V.P.; Janie McElveen, Secretary; Albert Leslie, Treasurer, and Colonel Paul A. Mayo, Chairman, Advisory Council. Committee Chairmen appointed: Irvin Marlar, program; Fred Aydelotte, arrangements; Don Marcy, membership; Austin Parker, finance; Jarvis O'Daniels, nominating, and Earl Reinke, publicity and public relations.

Bernard Kahn writes how inspired they all were by a visit from our AFMA Vice President, Major

General L. R. Dewey. The chapter held its first fall meeting on September 29, when Allen W. Voorsanger of Sperry Rand Corp., gave an address on "Electronic Data Processing, a Tool of Management," which was followed by a film and a discussion on the present and planned use of electronic computers by the Armed Forces agencies. In its brief existence this chapter has tripled its membership.

Sourdough Chapter. Major General L. R. Dewey and Carl Freedman, our Treasurer, with a DA Financial Management Plan team visited Headquarters, USARAL, at Fort Richardson, during the period 26 to 29 September to orient the C.G., and his staff regarding the concepts and objectives of the Army Financial Management Plan. During their visit to the Alaskan Command they met with Colonel W. G. Proctor, President of the Sourdough Chapter and discussed Chapter problems, some of which will be taken up at the next AFMA Board of Directors' meeting.

Wiesbaden Chapter. At the first official meeting, 10 March, Tom Murray, the acting president of the chapter, presented Colonel James H. Price, the 7100th Support Wing Commander with the charter for the chapter. Colonel Price, a former professor and chief of the Manpower Division of the Armed Forces Industrial College, Fort McNair addressed the members on the beginning and development of the Air Force's management program. Mr. Murray outlined the divisions of the chapter as: Accounting Systems, Administrative and Office Methods, Executive Control, Logistical Planning, Management Development, Management and Industrial Engineering, Personnel Utilization, and Programming and Statistical Review and Analysis.

Fort Benning, Ga.—A capacity crowd is expected to hear the Honorable George Andrews, congressman from Alabama, when he addresses the Fort Benning Chapter of the Armed Forces Management Association Nov. 15.

A well known personality who has visited Columbus, Ga., several times during the last year, Andrews will speak on management in government during a dinner session scheduled to begin at 7 p.m., in the Main Officers' Mess.

Among the special guests will be Major Gen. Joseph H. Harper, Infantry Center commander, and Brig. Gen. Ernest A. Barlow, deputy commanding general.

All members of the newly organized chapter are urged to attend.

Editor's Note: **If you do not find your Chapter or activities mentioned it is because you have not reported it. News should be forwarded to reach the editor six weeks before the magazine is published, i.e., for the January issue—December 15th. Copy is closed and forwarded to the magazine by the 25th at the latest. Send your local newsletter. If you haven't started one, just list speakers, with topic and date of address; activities of the chapters to include working divisions; election news; and visits to the chapter of persons of importance in the management world. Let's pass the news along and allow each chapter to observe the growth and activities of the entire Association. Forward news to M. M. Mulford, Comptroller Division, TAGO, Department of the Army, Pentagon, Washington 25, D.C.**

Aviation School Needs Helicopter Pilots

Camp Rucker, Ala. — The Army Aviation School here needs helicopter pilot instructors with a minimum salary of $6,390 per year and a maximum salary of $7,465.

Helicopter pilot instructors here operate rotary wing aircraft for the purpose of instructing student officer pilots. Included in instructions on rotary wing aircraft are all capabilities of the aircraft.

Applicants must hold at the time of filing application a currently valid CAA license with instructor's rating for either rotary wing aircraft or fixed wing aircraft. In addition, applicants must show a minimum of 500 hours as first pilot, rotary wing aircraft.

Interested persons may obtain Standard Form 57 for making application for the position from any United States Post Office. A Card Form 5001-ABC and a Standard Form 15 must also be submitted with the application. All inquiries should be addressed to the Board of U.S. Civil Service Examiners, The Army Aviation Center, Camp Rucker, Ala.

There is an age limit of 18 (which may be waived for veterans) but no maximum age limit. Applicants must be physically able to perform efficiently the duties of the position. He must have good distant vision in each eye and ability to read without strain printed material the size of typewritten characters.

Applicants must be able to distinguish basic colors and hear the conversational voice without the use of a hearing aid. Any physical condition which could cause the applicant to be a hazard to himself or to others will disqualify the appointment.

The Army Aviation School is located at the Army Aviation Center here at this southeast Alabama post. Nearby towns include Enterprise, eight miles away; Ozark, also eight miles away, and Dothan, 30 miles distant. Bus lines connect the towns and the post.

Saratoga Resembles Sister

The 60,000-ton carrier *SARATOGA*, launched in October, resembles her sister carrier *FORRESTAL* (CVA-59) but there are some important differences.

One big improvement is in the design of the *SARATOGA's* complicated machinery. Her propulsion mechanism will operate at higher temperatures and steam pressures.

She will develop more shaft horsepower than any other vessel ever built for the Navy.

Like the *FORRESTAL*, the newer carrier will have an island that is acoustically sealed to muffle external noises. She will have an enclosed bow, making for greater seaworthiness. An oxygen plant will make the ship self-sufficient in providing oxygen for her jet planes.

Army Opens Secret Military Lab in Canada

Suffield, Alta.—Western Canada's largest, most modern and most secret military laboratory has been officially opened at the defense research board Suffield experimental station by Maj. Gen. W. M. Creasy, commanding officer of the Army Chemical Corps.

The $1,500,000 central laboratory, (CL) in southwestern Alberta, 30 miles west of Medicine Hat, contains four working floors with eight scientific investigation sections used for experimental and trials' activities related to the defense aspects of biological, chemical and radiological warfare.

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SPOT-DROPS TO
ONE LOCATION

USAF HERCULES

The major problem in paradropping emergency supplies has been the unavoidably wide dispersal of small, individually-parachuted cargo units.

Tactical Air Command will lick this problem handily with the new Hercules C-130 transport built by Lockheed. This combat cargo carrier has the capacity to haul up to 25,000 pounds and paradrop it in a matter of *seconds*. Using the newest-developed aerial delivery techniques, this huge cargo load can be precision-dropped onto virtually any small space.

Powered by four Allison T56 turbo-prop engines, the Hercules is more than 19 times as productive as World War II twin-engine transports... and capable of flying cargo and men *farther, faster and at lower cost* than any other present-day combat transport. It's now being manufactured in quantity for the United States Air Force at

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Georgia Division, Marietta

Book Reviews

by D. D. Corrigan

CHRISTMAS GIFTS

The old saying, "It's nicer to give than to receive" certainly holds true when giving a book, for it works both ways. You can always borrow it back to read yourself. Books are ideal for Christmas presents because there is a book for every individual taste, and the price range is from twenty-five cents to practically any sum. There are books for knowledge, enjoyment, for hobbies, and anything important that ever happened or was said is contained on printed pages.

A world that consisted of no printing or reading matter would be a sad civilization, or really, no civilization at all. It's impossible to imagine a world without newspapers, magazines, or books. A man may be an avid baseball fan, kind to old ladies and children, be conscientious in his work, play an outstanding game of golf, furnish a home for stray cats and dogs, and be a Casanova with the women, but he is not educated unless he reads.

Here are some suggestions to guide Christmas shopping.

For Everyone

"THE TONTINE," by Thomas B. Costain. (Doubleday, 930 pages, two volumes, $5.95).

Perhaps a literary critic should not wholeheartedly recommend Thomas Costain as an author that will please everyone. He is not a sophisticated writer and has not reached the pinnacle of success credited to men like Ernest Hemingway and William Faulkner.

Costain's philosophy has a popular appeal. He does not believe that life is a rather gruesome deal and should be faced with grimness, determination and let's make the best of it anyway. Perhaps that is why Thomas Costain does not receive the plaudits from the intelligentsia circle. Also his books usually have a happy ending.

"The Tontine" is a long book. The two volumes come attractively packaged and at a reasonable price. This is the eighth novel he has had published in the past thirteen years. He has also written three histories. Historically his novels are always accurate and comprise a living picture of the times he is depicting. "The Black Rose" is rated by many as their most favorite story of all times.

His newest novel begins on the day the battle of Waterloo is being fought and ends at the close of the nineteenth century. Most of the story takes place in London, but the scene changes often to France, America, Jamaica, and Bermuda.

The characters are real and imaginary. The Napoleonic family stirs up one of the most exciting adventures. All types of people cross the pages—actresses, millionaires, royalty, portrait painters, industrial leaders, and many beautiful women.

Not only is this a story of romance, but it is the story of the great changes that were taking place. The merging of small concerns into large trade empires, the advent of the telegraph and railroad, the rights of wage earners, the employment of young children in industries; all have their place in the lives of the characters.

The action revolves around three English families, but the plot concerns the Tontine. The Tontine was a form of insurance, a kind of annuity, a gamble, and a lottery. The largest class were children, entered by their parents for a specified amount. The money is invested and at the end of the tontine period the payments start. Each participant receives an equal return, provided he is alive to collect it. When a shareholder dies his share reverts to the holders; and when the race narrows down to a few, the amounts of money they receive are enormous. Costain's characters follow closely the pattern of the Tontine, and the race narrows down to three survivors, then two and finally one.

If you do purchase this book for a Christmas present, it might be a good idea to pick one up for yourself. That is, if you like a story well told, with excitement and suspense, a book that carries you into an exciting period of history.

For Brother Bob Who Likes Adventure

"BETWEEN THE ELEPHANT'S EYES," by Colonel Robert L. Scott, Jr. (Dodd, Mead & Company, 243 pages, $3.75).

Since the days when he was a young Boy Scout, down in Georgia, Colonel Robert L. Scott had a yen for the wilds of Africa and stalking the world's largest elephant. This is the story of that dream-come-true, written with all of the verve, vitality, and dynamic drive that made his "God is My Co-Pilot," a best seller.

"REACH FOR THE SKY," by Paul Brickhill. (W. W. Norton, 312 pages, $3.75).

If this were a novel the average reader would scorn this story as being too fantastic. But the amazing fact is, it is a true account of Douglas Bader, who, although he had no legs, became the ace of the Battle of Britain.

"THE BRITISH SUBMARINE," by Commander F. W. Lipscomb, O.B.E. (The Macmillan Company, 269 pages, $5.00).

Commander Lipscomb fully describes the history, development, technical information, and achievements of the Submarine Branch of the British Royal Navy. This book will interest those who would like to learn about submarines, or will also serve as a very readable, exciting book.

To Uncle John With Kindest Regards

"A GUIDE TO MODERN MANAGEMENT," by Perrin Stryker and other editors of Fortune. (McGraw-Hill, 300 pages).

Editor Stryker takes a careful look at labor relations, over-communication, the pitfalls of profit sharing, and executive compensation. This is no dry textbook, reminiscent of school days. but a factual and informative guide to methods of modern management.

"THE PRINCIPLES AND PRACTICES OF MANAGEMENT," edited by E. F. L. Brech, B.A., B.Sc. (Econ.) M.I.I.A., (Longmans, Green & Co., 752 pages, $12.50).

Experienced specialists in the field of management have combined their talents. under the qualified editorship of Mr. Brech, to present a British textbook on

the newest developments of proven principles and practices of management.

This book deserves a place on the bookshelf of every executive and every organization and should be referred to often for study, reference, and thought-provoking ideas.

"THE AMERICAN CONCEPT OF LEADERSHIP," by Colonel Sherman L. Kiser, U.S.A., Ret. (Pageant Press, 234 pages, $4.00).

This author demonstrates new foundations to an enlarged understanding of leadership. Presented is a science with certain principles and rules to be studied, learned, practiced, and applied. There are certain established rules, but there are different means of interpretation to arrive at conclusive results. Colonel Kiser proves that "Know-how" of a job is no longer enough. Behavior and personality are of equal importance.

To Aunt Mary With Affection

"FIELDING'S TRAVEL GUIDE TO EUROPE," 1955-56 edition, by Temple Fielding. (William Sloane Associates, Inc., 749 pages, $4.95).

As necessary as corn pads, and as rewarding as a camera, is "Fielding's Travel Guide to Europe," For eight years this book has been the best selling guide to Europe, and now the revised edition gives up-to-the-minute material on 22 European countries, the British Isles, and Egypt.

"ATOMS FOR PEACE," by David O. Woodbury. (Dodd, Mead, 259 pages, $3.50).

The greatest force the world has ever known is found in atomic power and energy. This force presents two alternatives—annihilation or a new way of life. The atom shows the way to a rebirth of all sciences. Mr. Woodbury explains atomic energy in a way that everyone can understand.

With Love to Sister Sue

"RETURN TICKET," by Anthony Deane-Drummond. (J. B. Lippincott, 254 pages, $3.50).

An exciting true account of a brave and daring young British parachutist who escapes twice from an Italian prison camp. Suspense and adventure happen on page one and keep the reader engrossed until the last page is regretfully reached.

"APES, ANGELS, AND VICTORIANS," by William Irvine. (McGraw-Hill, 399 pages, $5.00).

This is the story of Charles Darwin, shy retiring scientist, and his contemporary Thomas Huxley, brilliant and vigorous. Their story is the story of evolution, and the intellectual upheaval that resulted when "Origin of Species" was published in victorian England.

Engineers Test Winterized Crane

Army Engineers have successfully completed preliminary field tests on a winterized 20-ton truck mounted crane at the Mesabi Iron Range in Northern Minnesota.

Equipped with winterization units developed by the Corps of Engineers Research and Development Laboratories, Fort Belvoir, Va., the truck-mounted crane operated efficiently in sub-zero temperatures for two months.

Designed to work in temperatures as low as 65 degrees below zero, the crane uses special arctic lubricants which prevent the mechanism from freezing in extremely cold weather.

Its cab is enclosed to provide protection for the operator. Personnel heating is accomplished by circulating heated coolant from either a gasoline-burning heater, or from the engine through a heat exchanger located in the cab. Fresh air in variable amounts passes through the personnel heaters to provide air for ventilation and for the removal of moisture expelled by the operator. By removing this moisture, the problem of window frosting is appreciably reduced.

A modified engine enclosure prevents the entry of wind-blown snow. Exhaust gases from the heater provides heat for the battery and engine oil.

Both thermal and acoustical types of insulation are provided to reduce heat loss and the noise level. All rubber components are made of materials which remain flexible at —65 degrees.

A limited number of leatherette bound copies of ARMED FORCES MANAGEMENT, Volume 1, October 1954 through September 1955, are available at $10.00. Those organizations and individuals who have already ordered Volume 1, need not reorder. It is requested that orders be addressed to Librarian, ARMED FORCES MANAGEMENT, 208 South Second Street, Rockford, Illinois.

Tests were conducted by Master Sergeant Robert Ness and Pfc. James Devoll under the supervision of Mr. John A. Klisch, project engineer. After minor modifications the crane was shipped to Big Delta, Alaska where more severe tests will be conducted during the coming winter.

The first objective of the Army education program is to raise the level of educationally substandard men. Between three and seven per cent of all new soldiers, recent surveys show, have less than a fourth grade education.

Henry Knox was appointed the first Secretary of War September 12, 1789.

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SERVICE SCHOOLS

Air Force Resources Management Course, George Washington University, Washington, D. C. Seven three-week courses scheduled from September 1955 through May 1956 with an average of 100 students (Lt. Colonels, GS-13's and above) are well under way. The objectives of the course are to give Commanders and potential Commanders:

1. An understanding of the national resource situation, some problems that develop therefrom and their impact on the military service; the attitudes of the Congress and the Executive Departments as related thereto.

2. An intensive review of the principles of management, organization, human relations, executive development, and communications, pointing out how the relationship of these principles to the techniques that have been developed can materially improve our productivity.

3. A better understanding of the use of management techniques.

4. A better understanding of current programs and operations of Headquarters USAF.

5. Practice in the application of management principles by case studies and seminar sessions.

6. An opportunity to exchange ideas and discuss current problems.

Service School Command, Great Lakes Naval Training Station, Illinois. Captain Leonard J. Baird, USN, has relieved Captain Jack B. Williams, USN, as commanding officer of the Service School Command.

Army Supply Management School, Fort Lee, Virginia. Ninety-six members of the school's fifth class were present at colorful ceremonies marking the first anniversary of the Supply Management School. Major General Edward J. O'Neill, Director of Programs and Budget, Office of the Deputy Chief of Staff for Logistics, addressed the class in a morning session and keynoted a banquet held that night for distinguished visitors, alumni and students.

Connally Air Force Base, Texas. The second Mid-Management Workshop to be conducted by the Manpower Management Division of Wing Personnel, recently graduated 20 officers, adding to their impressive list of management trained personnel. An eminent list of guest lecturers is arranged for each class from both military and industry by Mr. Harold Bolger, Director.

Army Signal School, Fort Monmouth, New Jersey. The officers' department of the Signal School annually graduates about 2000 officers from Signal Corps courses, but the department upset tradition recently in awarding a diploma to a female government employee. Miss Virginia Burk, a Signal Corps contracting officer at the Lexington Signal Depot, became the first woman graduate in the 36-year history of the officers' department when she completed the seven-week signal supply officers' basic course.

Naval School of Aviation Medicine, Naval Air Station, Pensacola, Florida. Captain J. C. Early, USN, commanding officer of the school, recently presented diplomas to Class 76 of Naval Flight Surgeons. Among the graduates were LCDR J. B. Lopez of the Mexican Navy and Surgeon LT Norman W. Bradford of the Canadian Navy.

Officer Candidate School, United States Coast Guard, Groton, Connecticut. New duty stations for 49 recent graduates were announced recently by Coast Guard Headquarters. They were immediately replaced by 88 men who have begun the four-month course leading to the gold stripe of an Ensign.

United States Air Force Academy. Aspirants for appointment to the second class at the Air Force Academy can now obtain a catalog outlining qualifications and the procedure for admission, by writing the Air Force Academy Appointments Branch, USAF Headquarters, Washington 25, D.C.

Northwestern University Traffic Institute, Evanston, Illinois. Five courses in management for police will be offered beginning in January by the Traffic Institute. Designed specifically for staff and command police personnel with management responsibilities, it augments the many courses offered to both civilian and military police administrators.

Command Management School, Fort Belvoir, Virginia. "Engineer Day", the second in a new series of "Technical Service" Days was held recently with Lieutenant General S. D. Sturgis, Chief of Engineers visiting the school. Designed to point out to each service how the instruction at the school can affect their personnel and methods of instruction, the "Technical Service" Days have been widely accepted by the services.

Strategic Air Command, Offutt Air Force Base, Nebraska. Thirty-three colonels, all newly assigned to SAC attended an indoctrination and financial management seminar recently at SAC Headquarters. The first three days covered indoctrination of the command's overall mission, and the last two and one half days were utilized by the Comptroller to explain financial management as it effects SAC.

Beech Awarded Contract To Build Drones

BuAer has awarded a contract to Beechcraft for the production of a new type pilotless, remote-controlled target plane. The new target drone was accepted by the Navy after Beechcraft submitted a winning design in a competitive race with nine other aircraft manufacturers.

With the first order scheduled for delivery in 1956, the drone will be used primarily to train ship-to-air and air-to-air Navy weapons systems crews.

The new target plane will be designated the XKDB-1, and it can be launched from shorebases, ships or aircraft, giving it great versatility.

Army Transportation School, Fort Eustis, Virginia. Brigadier General Frederick T. Voorhees, USA, has assumed command of The Transportation School. General Voorhees returned to the United States recently from the Northeast Air Command where he had been Commanding General of the 7278th Transportation Terminal Command.

Society for Advancement of Management, New York. A most successful conference entitled "Measurement of Management" was held last month at the Hotel Statler in New York City. The following is quoted for your review:

Why Must Management Measure?

We used to look only at what the record showed before making our important business decisions. Today we must also forecast the next ten years on the basis of additional measurements.

If we wish to narrow the margin of error of our measurement of management functions, we must broaden our own measurement horizons.

We can measure a manager's physical qualifications without much trouble—but an executive of the future is one who has learned how to gauge today the potential talents and effectiveness of managers in various functions. Progressive management is faced with the urgent necessity of measuring these functions against modern standards.

Headquarters California Military District, Presidio of San Francisco, California. Fifty military and civilian supervisors recently completed a Work Simplification course under the direction of the California Military Management Division. As a part of the district's overall management improvement program, resultant savings in manpower, materials and money can be expected.

United States Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio. General Thomas D. White, USAF, Air Force Vice Chief of Staff, recently reported that more than 10,000 students in engineering, meteorology and languages have been graduated from the Institute of Technology.

Fort Dix, New Jersey. Approximately 60 non-commissioned officers, many of them battle-tested veterans of World War II and the Korean War, are being graduated monthly at the First Army "College of Combat Leadership" being conducted at Fort Dix.

New Castle Air Force Base, Delaware. Graduating its 15th management class at the Base Management School has established some records hard to equal. Rated as the oldest management school in the Eastern Air Defense Force, the course of study occupies two hours a day for 20 days, and visits are made to nearby industrial plants in addition to the concentrated program of instruction.

The Armored School, Fort Knox, Kentucky. Major General Charles V. Bromley, USA, has recently announced the appointment of Colonel Henry C. Newton as Assistant Commandant, Colonel Lawrence E. Schlanser as Director of the Combat Developments Group, Colonel Donald R. Patterson, Secretary, Colonel Vincent L. Boylan, Director of the Nonresident Instruction Department and Colonel Welborn G. Dolvin as Director, Command and Staff Department.

Headquarters Third Naval District, New York. On November 28th, Rear Admiral R. H. Hillenkoetter, USN, Commandant, Third Naval District, presented his annual management training program. Attended by some 78 officers, enlisted men and civilians, the "how to do it" theme was stressed in both courses of instruction. Under the direction of Mr. Milton Reitzfeld, prominent management authorities joined Navy management specialists in presenting an interesting conference.

Walter Reed Army Institute of Research, Washington, D.C. Major General Leonard D. Heaton, commanding general, recently announced the change of designation which since 1950 has been known as the Army Medical Service Graduate School. No change will be made in the mission of the institution which will continue to provide medical research and professional graduate training to fulfill the Army's role in the national defense.

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For more facts request No. 63 on reply card

Lockheed Finishes First Carrier Jet Trainer

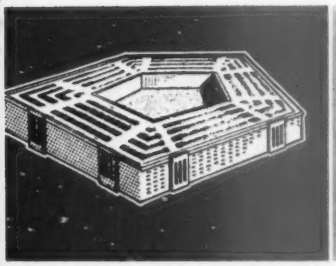
Aircraftsmen at Lockheed recently pinned up another production record—completion of the U.S. Navy's first carrier-type jet trainer in less than six months after structural work first started.

The T2V-1, a new two-place schoolship capable of operating with all the Navy's front-line carriers, was "right on schedule, from start to finish," according to G. A. Fitzpatrick, assistant general manager of the California Division of Lockheed Aircraft Corporation.

"The T2V-1 successfully met a rigid production timetable established 12 months in advance of the rollout date," Fitzpatrick said. Production was started May 5.

The new manufacturing mark compares with almost eight months required for the first T-33 jet trainer, forerunner of the T2V-1.

Wearing a new orange and white paint dress, the first plane will be placed on inspection soon at Lockheed's Burbank B-1 plant for all workers who had a hand in building or assembling the parts which went into it.



Washington Management

Department of Defense. Assistant Secretary of Defense Carter L. Burgess announced recently that Mr. William H. Kushnick, of Pittsburgh, Pennsylvania, executive director of The Instrument Society of America and former director of civilian personnel for the Army, is heading a work group studying the feasibility of putting into effect in the Department of Defense the manpower and personnel recommendations of the Hoover Commission.

Department of the Army. Camp Polk, Louisiana and Camp Rucker, Alabama, have been designated permanent Army installations and will carry the title "Fort." Fort Polk, which has been in a standby status since June 1954, was reactivated last month. Fort Rucker is the home of the Army Aviation Center and the 351st Regimental Combat Team.

Department of the Navy. President Eisenhower has named Rear Admiral Robert H. Meade, USN, chief of the Navy's Bureau of Yards and Docks as a successor to Rear Admiral John R. Perry who died recently.

Department of the Air Force. Recent acceptance was made of the first F-100C Super Sabre at its second source of supply in Columbus, Ohio. The new plant, a division of North American Aviation, delivered the Super Sabre 56 weeks after the original announcement on September 18, 1954, that the Ohio plant would be a second source. The F-100C presently holds the world's speed record of 822.135 miles per hour, has a service ceiling of over 50,000 feet and is armed with 20mm guns.

Department of Defense. The U.S. Department of Defense and the Canadian Department of National Defense have announced plans to conduct an air defense exercise this winter. Designated "Cracker Jack", the exercise will involve elements of the air defense systems, provide radar tracking and interception practice for the defense forces during winter weather conditions.

United States Marine Corps. General Randolph McCall Pate, USMC will succeed General Lemuel C. Shepherd Jr., as the twenty-first Commandant of the Marine Corps. General Pate has had many important assignments during his 34 year's service which will be climaxed by his new assignment.

Department of the Army. Disclosure was recently made of a sensational new space weapon to defend United States cities against intercontinental atomic missiles of the future. The new interceptor missile should successfully engage the intercontinental rockets which are the subject of intensive research by both this country and Russia.

National Guard Bureau. Major General Edgar C. Erickson, Chief of the Bureau, has launched a drive aimed at recruiting 75,000 men to meet the authorized strength goals for this fiscal year. The 5,885 Guard Units in more than 2,200 communities of the United States, Puerto Rico, Alaska and Hawaii will take part in the drive.

Department of the Navy. Through a new ultrasonic control system, torpedoes may now be guided to an enemy target by using sound waves in the water. The control, now using transistors replacing electronic tubes, automatically guides the torpedo after launching.

Department of defense. Military services during fiscal year 1955 placed new orders totaling $1,014,-077,000 for guided missiles or about 24% of the sum obligated for piloted aircraft in the same period. Total Defense orders for new aircraft amounted to $4,280,554,000. In actual spending, Defense total was $8 billion for aircraft and $568,-417,000 for missiles.

Department of the Army. Lieutenant General Charles E. Hart, V Corps commander in Germany since June 1954, will assume command of Second Army, Fort George G. Meade, Maryland, in February. Lieutenant General Lemuel Mathewson, director of the joint staff, Office of the Joint Chiefs of Staff, has been assigned to U.S. Army, Europe, effective also in February.

Department of the Navy. Vice Admiral Alfred M. Pride, USN, commander of the 7th Fleet in the Far East, has been named to succeed Vice Admiral Harold M. Martin as commander, Air Force, Pacific Fleet.

Department of the Air Force. Major General Walter R. Agee, has been named as the new commander of the civilian auxiliary, the Civil Air Patrol. He succeeds Major General Lucas V. Beau, who has commanded CAP for the last eight years and is retiring.

Department of the Army. The Army Signal Corps Engineering Laboratories at Fort Monmouth, New Jersey, have recently announced a new electronic device which may allow the soldier-scout of the future to carry his own tiny portable radar set. It's the world's smallest self-contained magnetron tube, weighing only eight ounces and no larger than a golf ball. Engineers visualize it in a portable radar kit which will warn isolated units of the approach of vehicles or infiltrating enemy troops.

Department of the Navy. The SURIBACHI (AE21), first of a line of ammunition ships, designed to conduct rapid replenishment-at-sea operations of ammunition and explosives, was launched last month in Baltimore. Named after volcanoes, the new ships will have an over-all length of 512 feet and a beam of 72 feet. The SURIBACHI has a light displacement of 7,500 tons and a cargo capacity of the same amount.

Department of Defense. Sales of surplus property during the 1955 fiscal year have brought $143,526,-844 into the U.S. Treasury—only slightly less than the sales of the previous three years combined. In addition to the dollars realized, many more are saved by avoiding housing and maintenance costs.

Department of the Navy. PROJECT VANGUARD designates the world's first venture to build and

launch a satellite. The Navy Department awarded the first contract to Glen L. Martin Company for the launching vehicle, and General Electric will supply the rocket motor. Dr. John P. Hagen of the Naval Research Laboratory is the project director under Admiral F. R. Furth, Chief of Naval Research.

Department of Defense. Secretary of Defense Charles E. Wilson has designated a management director and a technical director to work with a special group to study Department of Defense methods and procedures of research, development and production. Robert D. King, Deputy Assistant Secretary of the Army (Financial management) was named management director to the group, and James N. Davis, consultant to the Operations Research Office of Johns Hopkins University, was designated technical director.

Dorris Richardson of the McClellan Air Force Base statistical service office talks by telephone with Air Force installation in Oakland prior to turning on the new Data Transceiver which transmits IBM card information by electrical impulse. This is the first such equipment installed by the Air Force in the western United States.

Data Transceiver Speeding Report Transmission

A McClellan Air Force Base employee spoke a few words into a telephone, dropped a stack of punched IBM cards into the hopper of a compact new electronic device, and 100 overseas shipment reports were on their way to Oakland at the rate of 11 per minute.

Called a "Data Transceiver," the new system is the first of its kind to be installed by the Air Force in the entire western United States.

Connected by leased telephone wire with the Pacific Logistic Control Group center in Oakland, it started operating in October.

Already the Transceiver is doing away with the mailing of routine business reports between the two Air Force installations, transmitting in a few minutes by electrical impulse what formerly took up to three days by mail.

Electrical impulses take note of punches on data cards at the transmitting end and reproduce them on IBM cards at the receiving end.

However, before these impulses activate the punches in the blank IBM cards, they return to the originator for verification.

So ingeniously designed that it guards against its own possibility of error, the transceiver actually verifies what it is doing!

After the two operators—one at Oakland, the other at McClellan—exchange the necessary information, they replace their telephones on the hook and switch on their transceivers.

An exchange of test signals for adjustment purposes next takes place, the receiving operator flashes a "start" signal, the transmitting operator turns on the switch and the electrical impulses begin punching information onto blank IBM cards on the receiving end.

Far from being a passive partner, the receiving transcriber will automatically turn on a red light and buzz the operator in case of an error or a delay in transmission.

The transceiver even makes an electronic "character check." This is not an investigation of the operator's personal character, but a built-in means of checking the accuracy of the device's own electronic impulses as they are punched onto cards on the receiving machine.

Only one transceiver has so far been installed in the Statistical Services branch at McClellan, but four such machines can operate simultaneously on the same telephone wire, using different frequencies.

This makes possible the electronic transmission of 44 punched IBM cards per minute.

If, however, the operators decide to talk over the telephones, which are hooked into the same line as the transceivers, no cards will be transmitted, the human voice usurping all four frequencies.

Initial use of the new system is for transmitting routine overseas requisitions between McClellan and Oakland, but consideration is being given to a network of transceivers connecting all Air Materiel Areas and Air Depots.

Also, Maj. Gen. William T. Hefley, Commander of SMAMA, has named a special committee to explore new uses of the transceiver. Members are: Melvin Cory, Leon Pierce, 2nd Lt. Daniel Badura, Chester Gnirk, Frank Din, Lester Hough and Ed Dowart, all of McClellan; and LaRae Denning, representing the Pacific Logistic Control Group center in Oakland.

The greatest single mass troop operation in history was launched September 26, 1918. For 47 days of the Meuse-Argonne offensive, more than 1,200,000 American troops pushed forward on a 90-mile front in France.

NEWS BRIEFS from the SERVICES

Marine Corps Educational Center, Quantico, Virginia. Double promotions were in order recently with each adding a star. Major General Henry R. Paige, USMC, donned the stars of his new rank and Brigadier General Donald M. Weller, USMC, Chief of Staff pinned on his first in colorful ceremonies at the school last month.

Fort Lee, Virginia. The first of two Army self-service centers, a new plan in issuing supplies opened their doors for business last month with Major General Andrew T. McNamara cutting the traditional ribbon. Modeled after the modern supermarket, the new center is designed to streamline the job of issuing low-value, high-volume office, housekeeping and maintenance supplies. Complete with shopping carts the 800 different items are attractively marked and accessible. The soldier shopping for his unit that uses expendable supplies finds no requisition or issue slip necessary and instead the Army's version of the "charge-plate" is the shoppers authority while cash-register tape lists monthly credit allowances.

Military Sea Transport Service, Washington, D. C. Three repeat winners topped the list of six "smart Ships" selected from all the ships in the Military Sea Transport Service as the best in reliability, readiness, management and efficiency for 1955. The USNS Gen. Daniel I. Sultan and the USNS Pvt. Frank J. Petrarca both won for the second straight year while the Aircraft Carrier USS Tripoli repeated her 1952 victory.

Fort Devens, Massachusetts. Major General Bryan L. Milburn, formerly Special Assistant to the Army Chief of Staff for Reserve Components, will assume command of Fort Devens on the 11th of this month.

Air Research and Development Command, Baltimore, Maryland. A new 550-pound, 24 cubic-foot miniature electronic computer now solves mathematical problems in minutes compared with the hours previously required by conventional desk calculators. Used primarily for reconnaissance data for bombing missions, the new portable computer has found many additional uses.

Office of Naval Material, Washington, D. C. Vice Admiral R. P. Briscoe, USN, Deputy Chief of Naval Operations, held the recent Joint Military-Industrial Packaging and Materials Handling Symposium spellbound recently with his account of the Navy's Mobile Logistic technique. "Replenishment at sea techniques have been developed into a science" the Admiral stated and by way of illustration cited during the Korean operations, Task Force 77, a carrier group, stayed on the bomb line and carried out round-the-clock bombings. A further example is the well-known Mediterranean Sixth Fleet, who have operated without a fixed base, and is supported from continental U.S. bases.

Marine Corps Base, Camp Lejeune, North Carolina. Major General Homer L. Litzenberg, USMC, who commanded the Seventh Marines during some of the toughest fighting of the Korean conflict, assumed command of the Marine Corps Base on the first of this month.

Thule Air Base, Greenland. After several years of experimentation, the Air Force and the Army have succeeded in building a runway built of snow strong enough for operation of the huge C-124 Globemaster. Much of the credit for building the runway, rated a large stride forward in bolstering arctic transportation, goes to the 1st Engineer Arctic Task Force, based at Fort Belvoir, Virginia, and working at Thule during the summer.

Armed Forces Canal Zone. A pre-installation survey has been completed and by early next year Television for the U.S. Armed Forces in the Canal Zone will be a reality. It is anticipated that installation of equipment will start the first week in February and it is tentatively planned to house the television outlet in the same building at Fort Clayton as CFN, the Armed Forces Radio Station.

Naval Supply Center, Pearl Harbor, T.H. A million-dollar auction of 1420 surplus items brought bidders from such widely scattered points as New York and Australia in a recent three-day sale by the Supply Center. The new method of auction has realized a much higher return than the former sealed bid system.

Camp General Holland M. Smith, T.H. This new designation has been selected by the Marine Corps for the Naval Hospital at Aiea which will soon become the new home of Pacific Headquarters for the Corps. Dedication ceremonies for the new headquarters are scheduled for January 31st and General Smith who retired in 1946 and is now living in California will officiate.

Offutt Air Force Base, Nebraska. The new 10-thousand foot runway extension was formally opened recently and a B-47 Stratojet piloted by Major H. L. Jacobson, Jr., USAF, made the first 150 mile per hour landing shortly after the ribbon cutting ceremony to open the runway. The 4231-foot extension, three hundred feet wide and 19 inches thick, makes the southeast-northwest runway capable of supporting the largest Air Force planes.

U.S. Coast Guard Receiving Center, Cape May, New Jersey. The Coast Guard's latest recruiting film, "The Cape May Story" was completed recently and will soon be released for nation-wide television. Filmed under the direction of William Betts, the movie runs for approximately 15 minutes.

Naval Air Training Command, NAS Pensacola, Florida. "FLY" is the name of a new magazine for officers and Naval aviation cadets of the Naval Air Training Command. Launched into the journal-

istic world last month, FLY, will replace the CNATRA "News Letter" which concluded publication with the October 1955 edition. (Editors note: Best Wishes staff—)

USS Barbero, Mare Island Naval Shipyard, Vallejo, California. Recently recommissioned, the BARBERO becomes the second submarine to be converted to a guided missile ship and is expected to join the Atlantic Fleet next spring. Both the BARBERO and her sister-ship TUNNY, are equipped to fire the Regulus missile.

Fort Monmouth, New Jersey. A new "express" weather balloon which soars into the air at a speed of 1800 feet a minute, has been designed by the Signal Corps. Able to rise to a height of 15 miles, the new balloon can collect atmospheric data almost twice as fast as former models.

Naval Air Facility China Lake, Inyokern, California. Redesignated from Naval Air Facility, Inyokern, the air facility will function under the military command of Commander, Naval Air Ordnance Test Station, and under the management control of the Bureau of Ordnance. The mission of the facility will be to provide support for research, development, test and evaluation work in connection with guided missiles, aircraft weapons delivery systems, aircraft rockets, rocket launchers, underwater ordnance, and aviation fire control.

Ordnance Tank-Automotive Command, Detroit, Michigan. Brigadier General Nelson M. Lynde, Jr., Commanding General, has announced that a new electronic device known as BIZMAC is being installed at a cost of $5.5-million. The system, which will pay for itself within six years, will replace approximately 300 Ordnance clerks. When in operation next summer the machine will: (1) Maintain the current location of every part required to keep tank and automotive equipment in operation throughout the world; (2) Make an automatic forecast of requirements for procurement programs; (3) Process incoming inventory data each day rather than once a month as now being done. The system further can aid in mobilization planning and in the current federal cataloging program.

Marine Corps Air Station, Miami, Florida. Colonel Allen C. Koonce, USMC, has assumed command of the station. Formerly Chief of Staff, MAG-31 (Reinf.), he has been at the station since June 1954, when he reported from duty as Chief of Staff, AirFMFPac, El Toro, California.

U.S.S. Sailfish, Naval Shipyard, Portsmouth, New Hampshire. Recently launched, the SAILFISH becomes the first submarine to be built from the keel up as a radar patrol ship. Previously, submarines assigned radar patrol missions were converted from older fleet types. Two years in building, the SAILFISH will join the undersea fleet in 1956 after her commissioning.

Domestic Jet Airliner Contract Placed by United

The first contract order by a domestic airline for jet airliners that will revolutionize air travel in this country, was announced October 25 by W. A. Patterson, president of United Air Lines, who said the company will spend approximately $175,000,000 for 30 Douglas DC-8s and spare parts. It is the largest jet airliner order yet placed with any single aircraft manufacturer.

Delivery of the 112-140 passenger aircraft will begin in May, 1959, and United will inaugurate jet service between principal cities on its 13,250-mile system by November, 1959, Mr. Patterson said.

The swept-wing airliners, designed for transcontinental and Hawaiian service, are the third major addition announced for United's present fleet of 177 planes. Orders placed with the Douglas Aircraft Company last fall and in April of this year call for delivery of five DC-6As, 17 DC-7s and 21 DC-6Bs. These piston-engine planes, costing $64,500,000, will accommodate United's expanding operations until the jets arrive, Mr. Patterson said.

The DC-8 will be powered by four Pratt & Whitney J-57 engines, each capable of more than 10,000 pounds of thrust. (A pound of thrust is equal to one horsepower at 375 miles an hour. A thrust-reversing mechanism will shorten landing distances and serve as an additional runway brake.

The J-57 engine, in production since 1953, has seen extensive service on various types of military planes. One J-57 engine costs $145,000.

United has worked with both the aircraft and engine manufacturers toward accomplishing a substantial reduction of external noise under that of the present-type jet engine, Mr. Patterson said.

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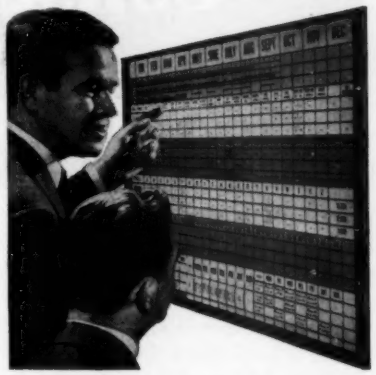

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ADVICE

It was at a gathering of some newly joined officers that the brilliant American gen'l, Mark Clark, was asked: "What, sir, was the best advice you've ever had?"

The Gen'l pondered for a few moments.

"The best advice I ever had," he said at length, "was to marry the girl I did."

"And who, sir, gave you that advice?" asked another young officer.

Snapped Gen'l Clark: "She did."

Conservation through Suggestions

Naval Retraining Command, Camp Elliott, San Diego, California. Captain Thomas S. Cameron, USN, Commanding Officer, recently presented Mr. Jack B. Kellhofer a nice check for $300 representing his work in setting up furniture repair and upholstery shops.

Fort Sill, Oklahoma. A conservation program for gas, electricity and water recently paid off for Fort Sill with a savings of $2001 during the month of September. Targets established for consumption had each month during the fiscal year been missed. Maybe it could literally be said that "putting on the heat" turned it off.

Sampson Air Force Base, New York. Civilian employees last month tripled their previous high total of suggestions submitted in any given month. Dollars and cents-wise, 1955 suggestions are paying off in government savings, too, with $44,000 returned to the government. By designating a "Suggestion Month", interest ran high and is responsible for the upward trend.

Naval Dental School, Naval Medical Center, Bethesda, Maryland. Commander William N. Gallagher, USN, has invented an electronic control for reducing the amount of water consumed during dental treatment. The control device, costing approximately $12 is expected to save 210 million gallons of water a year for the Navy with a savings of more than $160,000.

Headquarters Fourth Army, San Antonio, Texas. Major Ralph G. Hook, was recently announced as the second place winner in the Fourth Army military suggestion contest and received a check for $50. The Major suggested that a revision be made in the format and distribution of a form letter pertaining to the movement of government vehicles over public roads. Estimated savings for the first year will be $1500.

Naval Auxiliary Air Station, Whiting Field, Milton, Florida. Three superior achievement awards, the first in the station's history were recently made to Charles M. Martin ($200), Frank Weaver ($200) and Bolden Davis ($100).

Lycoming Division, Avco Manufacturing Corporation. More than 5,000 suggestions have been received rounding out two years that the Suggestion Program has been in effect. Five of the top winners are: William Tigano (shared $1472 with Robert Lepper), Jack Wall ($749), Michael Komar, ($1000) Alfred Danoski ($911), and Robert Lepper. A total of 942 awards have been presented and $26,046 paid to the winners.

Langley Air Force Base, Virginia. Colorful ceremonies recently cited 519 civilian employees at an annual presentation. Honorable Bradley D. Nash, Assistant Secretary of the Air Force and Brigadier General Edwin S. Chickering, commander of the 405th Fighter-Bomber Wing, participated in the ceremony.

Naval Air Station, Patuxent River, Maryland. Captain T. B. Neblett, USN, Commanding Officer, last month presented awards to four civilian employees. Top winner was Charles M. Choate who won $105 for his money-saving suggestion of using a ground rod driving rig in his work at the public works utilities section.

Presidio of San Francisco, California. During the past three months, eight civilian thinkers have thought themselves into a total of $380, and the Army expects to realize a return each year of $18,000 in overall savings, as a result of those eight top suggestions. The largest single award was made to Mr. Benjamin Yip of Post Ordnance who received $175 for an idea in connection with the simulated reactor load for fire control generators.

317th Troop Carrier Wing, Germany. Colonel Joseph A. Cunningham, USAF, Wing Commander, reports that suggestions of one officer and four airmen may save the Air Force more than $500,000 yearly. A/1C Floyd E. Jeffcote, devised a jog for straightening shield assembly power turbine wheel hubs, which will save over $484,000 of the the total.

U.S. Naval Supply Depot, Scotia, New York. Joseph Malatino, Technical, netted $145 in the latest Beneficial Suggestion program payoffs for his idea on the inspection and identification of JanMat material. Other winners were Thomas Moreland, John Anderson, Joseph Bialon and Carl Przekop.

Fort Dix, New Jersey. Sgt. Richard J. Mason received congratulations and a check for $25 from Major General Robert W. Ward, Commanding General, for his suggestion to use muslin instead of cotton in the making of danger flags for the firing ranges. Savings of almost $6000 can be realized as a result of Sgt. Mason's idea.

Sondrestrom Air Force Base, Greenland. Lt. Colonel Frederick G. Siegrist, Jr., Base Installations Officer, found he was far behind in his preventative maintenance workload. A study showed he was never going to catch up without additional help. He got it! By recognizing the value of the American competitive spirit, and with the assistance of the Base and other Unit Commanders, paint flowed and hammers flew and presto, the Base was shining, backlog ended and all for many dollars less than allocated.

Fort Lewis, Washington. Mr. Harold Feutz was the recent winner of $460 for his idea of a more efficient system for repairing worn cables from anti-aircraft and other

guns by revulcanizing them without cutting, thus saving eight to ten man-hours on each repair job. An estimated saving of $47,000 annually throughout the Army is expected from his suggestion.

Eielson Air Force Base, Fairbanks, Alaska. Fire Chief Frederick Roberts was awarded $200 by Base Commander Colonel Ray J. Will, USAF, for his invention of a Chisel Nozzle for use in fighting fires. With the new type nozzle, water may be sprayed from many different angles and direct application can be applied.

Naval Supply Depot, Seattle, Washington. Mr. John Herr, chief quarterman, has designed and built a trailer of channel iron, which permits lifeboats to be moved by fork lifts and towed by a dock tractor. Until Mr. Herr came up with the idea, it had been necessary to move them by truck and load and unload with a heavy mobile crane.

Infantry Center, Fort Benning, Georgia. Brigadier General Ernest A. Barlow, Deputy Commanding General, recently presented awards for improved job methods to Mr. Edmund B. Van Meter ($405), Charlie L. Boone ($45), Mrs. Ida C. Evans ($20), and letters of recommendation to SFC William H. Gates and Robert E. Lamb. Mr. Van Meter's award, the highest ever received at the Center, was for designing a gauge to measure wear of and connectors on tracks of an M-48 tank. His suggestion will save over $35,000 at Fort Benning each year.

Eleventh Air Division, APO 731, Seattle, Washington. A recently concluded Management Improvement Contest conducted at Ladd Air Force Base for military personnel resulted in A/1C Charles P. Kneff, winning the major award of an engravel cigarette lighter, $25.00 U.S. Savings Bond, expense-paid three-day trip to Anchorage, and the Alaskan Air Command Certificate of Merit for Management. Plans have been made to continue the awarding of an engraved lighter and a three-day pass each month for the outstanding suggestion received from military personnel.

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Chicago QM Purchasing Center, Chicago, Illinois. Colonel Jack E. Finks, Commanding Officer, recently complimented SP 2 Harry E. Donohue for his suggestion regarding procurement of maintenance equipment which will result in a savings of approximately $550 each year. Fifteen out of every 100 employees contributed suggestions for the six months period ending 30 September 1955, which resulted in 167 adoptions and thousands of dollars saved. The savings from six of the most recent suggestions were measurable and estimated at $8752 a year.

Wright-Patterson Air Force Base, Ohio. Twenty civilian employees were presented with awards and $1,795 in cash for efficiency and employees suggestions at Headquarters, Air Materiel Command, last month. The highest individual suggestion award of $235 went to George A. Schaffer, for his suggested changes in the Supply Catalog.

Naval Air Station, Pensacola, Florida. Chief John A. Vincent received a letter of commendation from Captain Carson Hawkins, USN, for his invention of an aircraft tie-down, and 23 civilian employees walked away with $713 in recent idea-pay-offs at the Station.

Pacific Transportation Terminal Command, Fort Mason, California. Mrs. A. Marie Elwell was recently presented with the Department of the Army Award for Meritorious Civilian Service at Oakland Army Terminal.

Aberdeen Proving Ground, Maryland. In recent ceremonies, Mr. Clair W. Bryan received $320 for a suggestion which will save the Army more than $18,000 a year. His suggestion that the firing pin guide for the 20mm gun be made of aluminum instead of steel will decrease the inertia load on this and other parts in the assembly, and will result in a lighter, cheaper part with longer life. Mr. Hazen C. Sweet, was awarded $475 for his suggestion anticipated to save as much as $288,000 each year. Mr. Sweet's suggestion for a new type contract on the sale of grease and bones at all Army installations, will be published in the next change to Army regulations governing those sales.

Military Sea Transport Service, North Pacific Area, Seattle, Washington. Mr. Thomas D. Egan recently received $90 for his suggested portable paint brush box which has proven a time and money-saver, and Mr. J. R. Henderson picked up $30 for suggesting the ship's P.A. system be used to pass the word when crews were working over the side to keep others from throwing materials over with resultant damage to the crews.

Holloman Air Force Base, New Mexico. Eight civilian employees were presented checks recently by

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Brigadier General L. I. Davis, USAF, Center Commander, for their time and money saving ideas. The largest check went to Mr. Glen Richards ($475) for his mechanical "cutter box" idea for use in balloon cut-down when conventional methods fail.

Fort Bliss, Texas. Major General Paul W. Rutledge, Commanding General, recently presented checks to the first three winners in the new suggestion contest for military personnel. SFC Lawrence V. Sherard took first prize of $25, Major Ralph D. Newby won second prize of $15 and Lt. Robert E. Casanova was awarded the third prize of $10.

Philadelphia Naval Shipyard, Pennsylvania. Mr. Thomas R. Prause together with Joseph J. Fee and John B. McGovern, have suggested the use of a coating of sealing cement to protect soot blower piping insulation against moisture. Copper cuffs, costing over $2000 for a four boiler vessel, have been used previously. With sealing cement, the job can be done for less than $100.

Seattle Army Terminal, Seattle, Washington. The number of suggestions from employes during the first quarter, 1955, shows an increase of 97% over the average received each quarter during fiscal year 1954. Five employees were recently presented with incentive checks, the largest, $40, went to Talmadge C. Duke for his idea of a portable cleaning and preservative dip tank. Two employees of the Seattle Army Terminal, Dean V. Stanger and Ralph Leady, have been presented a total of $100 for suggestions made under the Army Incentive Awards program. The cash awards were made by Colonel E. Jeff Barnette, SAT Commander.

Mr. Stanger's idea will result in about $2228 savings the first year. He recommended rehabilitation of shackles without pins received from overseas gear lashing. About 770 will be repaired and placed into use the first year. He was presented $85.

Mr. Leady was awarded $15 for a safety suggestion which will benefit Terminal personnel as well as visitors.

Air Materiel Command, Wright-Patterson Air Force Base, Ohio. A reduction in cost of several million dollars is being realized on the Air Force F/TF 102A program through the use of forgings. By forging under the heavy press program, various major fittings, bulkheads, engine mounts and others, thousands of dollars are saved. As an example, the No. 4 bulkhead of the F102A was priced at $1210 for billets while the same part has been reduced to $266.50 by forging. A large reduction is also being made on machining. The same bulkhead machined from billets cost $10,000. With forgings the machining was cut to $5000.

Pueblo Ordnance Depot, Pueblo, Colorado. Thirteen employees were recently presented with awards by Colonel J. M. Henderson Commanding Officer, for outstanding suggestions. Ranging from $5 to $115, each represents a substantial savings to the Army.

Smoky Hill Air Force Base, Salina, Kansas. A total of $150 was collected recently by five NCO's when Colonel Jack L. Randolph, Base Commander, presented them with awards from the Incentive Awards Program.

Fort Benning, Ga. Continental Army Command Board No. 3 at Fort Benning, An Army experimental and testing unit, has announced two improvements which will save the government time and money during future testing operations at The Infantry Center. One improvement, the construction of permanent concrete block firing bunkers to replace the old sandbag ones used previously in weapons and ammunition tests, will save the government about $1,850 and 8,800 manhours yearly. The new bunkers, estimated to have a useful life of 10 years, eliminate the need for filling and transporting sandbags.

The utilization of a building, scheduled for razing, which was moved out to the range site for storage purpose, was the second innovation. The use of this building eliminates daily transportation of unclassified materials to the ranges, and is estimated to save about 2,000 miles of vehicle travel and 400 productive manhours yearly.

Naval Supply Center, Pearl Harbor, T. H. A central delivery station in Honolulu where imprest fund purchases may be delivered by vendors has been established. Service has been extended to include NAS Barber's Point and NAD Oahu. Savings, computed on the basis of decrease in man-hours required for pick-up of the material, totaled $1300. Salvage of usable boxes, crates and 391,676 board feet of dunnage resulted in a $38,275 saving.

Strategic Air Command, Offutt Air Force Base, Nebraska. Estimated savings of more than $7 million in 1956 through mechanization and new techniques of business automation, has been predicted by command comptroller authorities. Colonel James O. Gross in making the prediction said the expected savings would come through reduction in personnel, space, and materiel requirements resulting from the switch to mechanized business equipment, already installed at command bases.

Headquarters Fourth Army, Fort Sam Houston, Texas. During fiscal year 1955 savings of $451,125.02 through an aggressive program of destroying and retiring unnecessary paper on file throughout the area, have been reported.

Diamond Ordnance Fuze Laboratories, Washington, D. C. Mr. A. A. Richter received $200 in recent ceremonies presenting awards to 11 other DOFL employees, for devising the first practical means for testing VT fuze reserve batteries after application of high setback forces. Other top winners were Ruth Kuehne, Shea Sintetos, John Vineski and Harvey Foure and E. G. Spencer who received $200 each.

United States Army Caribbean, Fort Amador, Canal Zone. Leading all Army Commands in the United States and Overseas in civilian employee participation in the Army Incentive Awards Program during the fiscal year ending June 30, 1955, the 21.78 per cent rate of participation doubled the Army-wide average of 11.5 per cent.

Letters to the Editor

Dear Editor:

Recently your magazine published a congratulatory note to the Army Finance Corps for its continued service to our country from the birth of our nation. A reader took exception to the fact that the Finance Corps dates its history back to 1776 or thereabouts. The reader was partially true in his statement as the Finance Corps, per se, is a recent title to an old and honored service. If the reader will request a copy of the "history of the Finance Corps" from the Office, Chief of Finance he will find sufficient proof cited to bear testimony to the age of the Finance Corps. Also, he should check the oldest special orders on file in the National Archives, Washington, D.C. The several references to the Finance Department, which was the forerunner of today's Finance Corps is to be noted.

John C. Matejka,
501 No. 39th Street,
Belleville, Illinois

Dear Editor:

Recently I received the September issue of your excellent magazine and as usual I found it extremely interesting and of aid in my work. I particularly enjoyed the article by Major General L. R. Dewey in connection with the Army Program System inasmuch as it relates directly to our efforts in installing the programming system in this area. I feel that if I could reprint this article and distribute it throughout the command, it would assist materially in our efforts. I therefore request your permission to reprint the article.

Wallace Lowe,
Program Review & Analysis Branch
Office of the Comptroller
Hq Northern Area Command
APO 757, New York

Dear Mr. Lowe:

We thank you sincerely for your comments on ARMED FORCES MANAGEMENT, and you have our permission to reprint General Dewey's fine article. Please send us a copy for our copyright files.

Dear Editor:

Reference is made to Sept. issue of ARMED FORCES MANAGEMENT in "Letters to the Editor" wherein you promise an article on "Army Management Improvement through Real Work Simplification." October and November issues have come and gone and still we wait with a great deal of expectancy to hear more about the program that is the real meat of this whole improvement effort—real *Work Simplification.* How much longer must we be kept in suspense? Let's have it!

Anonymous but enthusiastic reader and supporter of your magazine.

Dear enthusiastic reader:

The limitations of magazine space coincident with other previously promised articles, plus press schedules threw us for a loss longer than we expected. We finally made it with December as you'll see by glancing at the contents of this issue. We're sorry to have "dogged" our promise this long.

Dear Sir:

I am a diligent reader of ARMED FORCES MANAGEMENT. Do you mind introducing me to some useful books about Management in the Armed Forces.

Warren Ling,
707 20th St., N.W.,
Washington 6, D.C.

Dear Mr. Ling:

Thanks much. Your request has been turned over to our library staff which is compiling a list, currently, of such books. When it is completed, you will receive a copy.

Designer Receives Top Air Force Award

The Archdeacon Deck, a removable aircraft cargo deck, brought an award of $5000 to its designer, Gerald D. Archdeacon of headquarters AMC, Wright-Patterson AFB, Ohio, it was announced this week by the Air Force.

The award is the highest civilian award that the Air Force can give. It is also the highest individual award ever granted an Air Materiel employe throughout the nation.

Built at a cost of $67,000, the deck can be reproduced in quantity in a short period, and installed by shipyard crews.

Small Firms Receive Bulk of Awards

Small business firms of the San Francisco Bay area received 89 per cent of the total dollar value of procurement awards made during the quarter ended September 30, Headquarters Oakland Army Terminal announced today.

The dollar volume of expenditures for ship repairs, cargo contracting services, and supply purchases totalled $1,923,300 of which small business firms received $1,703,702.

Tiny, Powerful Atomic Lamps Added to Some Navy Ships

Washington (AFPS)—The Navy is installing small atomic "lamps" on some of its ships. The principle used is the same as a luminious watch dial, but many times more powerful.

The lamps are actually small plastic markers that range from 1 to 1¾ inches in diameter, a little larger than the ordinary wrist watch.

Navy scientists said that the markers contain radioactive substance produced by the atomic energy program.

The markers glow continuously and last several years. The larger ones emit light visible for a maximum of 1,000 feet.

The Navy said these atomic lights could be used to read maps, orders and instructions in darkened areas where bright light is not desirable and illuminate dials, gages, emergency and exit signs.

The average account in the Army soldier's deposit is $113.

Army Invests $334,000 in Ideas; Realizes Some $20 Million Return

For an investment of only $333,956 the Army estimates it has bought itself more than $20 million worth of ideas through the past fiscal year's Incentive Awards Program.

Management Improvement in the Army Through Real Work Simplification

by Leon Burnham
Army Management Improvement and Work Simplification Coordinator

INTRODUCTION

"Time spent on stamping operations was cut 75 percent so that personnel could be released for other work." . . . "Installation of a cut-off valve in the boiler system saved one and one-half tons of coke a day." . . . "Use of spray gun instead of brush saved six man-hours of work time per operation." . . . "Clerical operation eliminated by proper distribution of work." . . . "Transportation distances reduced by elimination of duplication of effort." . . . "Consolidations—improved distribution, reduced costs, less paperwork, better utilization, improved control, relocation of work, discontinuance of uneconomical operation." . . .

Evaluations such as these are constantly being reported at every echelon as the Army Work Simplification Program swings into action. *Put these and tens of thousands of similar improvements together and the resulting savings of manpower and material resources represents an impressive gain in Army effectiveness.* It represents the elimination of WASTE in big capital letters. It means *real tangible, measurable* improvements in the ever-growing fight on lost time, manpower, materials and money. This is not a program of austerity or one to shrink the potential strength of the country's armed might but is a thrust at the vital organs of the great Green Dragon of waste and inefficiency. It is a dynamic and systematic trust at the very heart of the problem of getting "more out of the resources we have at hand." Let us stalk the beast further.

People generally do not know the effort put forth by the Army to improve its internal Management. There is a constant striving in the Army for more efficiency and there is an awareness of the necessity for improvement of operations that is felt in every unit, branch section and division of the Army Establishment. It is therefore entirely fitting and proper to let the people know about this in plain understandable language.

In government or any other form of big business, Management is a manifestation of leadership. One aspect of good leadership in this day and age means getting the most good out of every dollar spent. The government, and in this case the Army, must stretch the taxpayers dollar to the limit in order to get the most out of each defense dollar entrusted to its care. In private business there is the profit motive and competition but in government both of these incentives must be replaced by something else. That something else must be then, better management through leadership that cannot afford to overlook anything in its quest for "the better way"—the eternal search for more efficiency, increased production, lower costs and better quality of work.

The Army has an over-all Management Improvement Program that serves as an umbrella over many sub-programs. Some of these sub-programs are, Management Surveys, Work Measurement, Efficiency Awards, Supply Economy, Cost Consciousness, Work Simplification and many others. Each sub-program has a vital message and assists in the over-all improvement of operations. Each program has a message and reaches different groups and accomplishes its objective in its own way. This article cannot cover all of these sub-programs. It will therefore be confined to a brief discussion of only one of them, the Work Simplification Program.

The Army Approach to Work Simplification

The Army Work Simplification program is considered by some people to be the "yeast that makes the bread rise." When properly understood and put into "action" it is a foundation for all the other programs.

Knowing Work Simplification is not enough. It is the *doing* of Work Simplification that counts. Many

people say, "Why should I be bothered with this program, I know all about it." My gracious, how far they are from *knowing* Work Simplification. Look right around us. Do we see evidences of waste motion, lost time and inefficiences? Then, do we know the program? If Work Simplification isn't *applied* and *done* then people around about it don't know the program or haven't even scratched the surface of its latent potentialities. Yes, we get impatient at time but it is this impatience, this constant striving for action that breathes life into this very program. It is like building a house. First the foundation must be built then come the various rooms and as many floors as the plans call for. The firmer the foundation the better the house.

Work Simplification in the Army is the bottom-up approach to better Management and it pays off by putting in a firm foundation for all other Management programs. For example, recently one large operating unit in the Army appointed Management Assistant personnel to first teach and follow through on Work Simplification. After giving all the supervisors *real* instruction and after applying the principles of Work Simplification, the Management Assistants are starting to take on additional Management Engineering work and are building a firm structure of applied management improvements or as we say in the Army here is an example of "management engineering in action" from the bottom up.

First line supervisors get a taste of Management Engineering through planned Work Simplification conferences. As students of management techniques they grow into instructors and from there become Junior Management Engineers in their own spheres of influence. Here is the process of using the latent creativeness in every individual and at the same time building up a *cadre of* trained personnel who start to grasp the meaning of *real Management Improvement and the place Work Simplification has in it.*

The Army is taking a positive approach to bring modern business methods to all personnel in the Army. It is creating the *occasion* for supervisory personnel to participate in Management. This gathering of experience in bottom-up management is giving the whole approach stature and meaning, and is preparing the broad base for engineered standards and advanced management studies.

Objectives in the Army Work Simplification Program

The improvement in management is something dynamic. It is constant "push" to raise our standard of living and keep America "up front". One of the most striking *action* programs to systematically keep us there is this current Army Work Simplification effort.

Work Simplification means many things to different people. In the Army the Work Simplification program is thought of as:

More than better procedures and methods!

More than a lot of time-saving gadgets!

More than human engineering!

More than better communications of ideas up and down the line!

More than common sense in action!

It is all of these things put together in an organized and tested approach that spells better management to all who take it seriously.

Now, just what is the Army approach to this Work Simplification?

First, the Army Work Simplification program is aimed directly at the foundation of Army Management—the indoctrination of the first line supervisor in problem solving. The program is designed to provide the first line supervisor with a systematic method to identify work problems, analyze these problems, develop realistic solutions, and install improvements.

The vital part of the program is the planning, selling to top and middle management and scheduling of conferences or classes. This brings us right up to the first hour of instruction for the supervisor. Shortly thereafter things start to happen, they start simplifying their work, become aghast at duplication of effort, steam starts building up for new ways of doing work! Let us look at the real objectives of the Work Simplification program!

1. Make every Supervisor his own management engineer, at least within his own sphere of influence! Give the supervisor tools and train him in their use for analyzing his own unit and his own methods and procedures. This includes the conducting of continuous review and appraisal of effectiveness of performance of the employee, his organization, and his operations.

2. Have each Supervisor come up with installed improvements so that operations will show better performance, better production, less waste, less extravagance! This is not a one shot affair but goes on and on.

3. Work Distribution Charts, Flow Process Charts, Layouts studies are kept on hand and in current condition for his own use and for use by visiting survey teams, staff officials or manpower groups.

When these objectives are reached we have started a foundation upon which a solid structure can be built.

We believe Work Simplification has matured greatly in the last few years. *Work Simplification has come of Age.* It has matured to the point where it is expected that as a matter of good business a supervisor will have in his own desk, papers which will prove to his satisfaction and to the satisfaction of his superiors that he has a good organization and that it is producing effectively. These tools of supervision are as essential to good management as the tractor is to the farmer or the wrench to the mechanic. This use of basic tools is the thing we are teaching in Work Simplification – Their use is *Work Simplification in Action* – Furthermore *this is Scientific Management in Action.*

We are constantly reminded that people are more important than things. Anything we can do to give people more stature, more satisfaction, make them more a part of the team, is important especially today when our fundamental beliefs are being so strongly challenged. The Work Simplification Program strikes at the very heart of the problem of people. It gives the lowest supervisor the tools with which to make a dignified, satisfying and positive contribution to his team.

Background

Let's go back a bit and see how this all came about. Work Simpli-

fication didn't just happen! Army Work Simplification starts out by saying that we must have three basic things in order to succeed in the program.

First we must have the temperament to abhor waste. The whole program is built around reducing waste—waste of time, materials, manpower and money. Without a fundamental desire to actually *do* something about it—to be motivated to action—to actually build up a hatred for any wasteful practice, Work Simplification just can't get started. If people don't have this urge to eliminate waste then it must be cultivated. They must be shown that there is waste in all work, wasted travel distances, wasted motions, delays, duplications, overlappings, unnnecessary plans, movements and operations.

Second there must be a willingness to *why the daylights out of everything.* Here we have the "questioning attitude". It is only when we have the questioning attitude—the fierce, piercing, self-analysis of things as they are, can real progress be made. Here we must ask ourselves early in the game, "Are we serious about this thing?" Do we really want to reduce expenses and get the job done with the least waste of time, materials, manpower and money. If so, we must develop the questioning attitude.—The sooner the better.

And thirdly we must have an *organized, systematic and planned course of* action.

Well, we think in the Army we have such a program—The Work Simplification Program covers all these three points mentioned above. *It is a program that must give every supervisor a graphic picture of his work and thus open the* gates to self analysis and improvement.

As we looked around for ways and means of getting a *real Work Simplification* Program started we realized we must combine the wisdom of Solomon with the practicability of every day living to arrive at our goal. We realized the following things would have to be included in the program:

The Human Element
Participation
Appreciation

No matter how thing you slice the cake it is still cake. No matter how we approached the problem we still find these three things were basic to any approach to Work Simplification.

By *"Human Element"* we mean the fact that people are more important than things. If we want to get improvements in operation we must work through people and understand their characteristics. Now it has been said so often that "people resent criticism" and "resist change." Yes, they do if not approached right and every example thought up to show resentments of "criticisms" and "resistance to change" we can think up cases where people, all people, love change. As a matter of fact the whole history of the world shows that the majority of people are for change—change to the better—eternal search for better things in life. So in developing the Army Work Simplification Program we have insisted on knowing the human element involved. The program was never made mandatory or dictatorial in any aspect but rather it understood and emphasized from the beginning that *ideas* cannot be *requisitioned;* they must be generated and generated through people.

The next item called *"Participation"* is equally important. Here we were faced with shaping up a program that would reach the greatest possible number of people and still have teeth in it for accomplishments and results. The program was designed therefore, to reach down to the first line supervisor. Here we had a two-edged sword. Cutting up and down—up toward middle and top management and down to all employees. Here was the real test of "bottom-up" management. By getting all supervisors in the act we were putting Democracy into action. Many is the time that supervisors have come to us and said "Tell us what to do and we will do it." However, when they were asked to "participate" in management as part of the whole picture—giving them a feeling of belonging—then they were "reached." We knew also that we were releasing the power of ideas that is dormant in every individual. This principle of *participation* was incorporated into our basic program. Thousands of minds are better than a few.

The last item called *"Appreciation"* becomes an intrinsic part of the over-all program. This was the "pat on the back" part. The tieing in "Incentive Awards" programs and better yet the general creating of an atmosphere of understanding and concrete ways and means of showing "appreciation" by action on a "job well done" and an outward acknowledgment and recognition of work done over and above the line of duty. This is the part that is "benefits unmeasurable" for how better can one create good morale, the clean smell of a well-organized and functioning office or shop through satisfied and contented employees, than to give them recognition and a sign of appreciation.

We could go on and say a lot about the three basic ingredients, the Human Element, Participation, and Appreciation in the Army Work Simplification Program but we must hurry on.

The Army Work Simplification Program didn't just happen, it was carefully planned. But before releasing it Army wide, it was "pilot tested" in many places.

As early as 1948, the Office of the Comptroller, European Command, employed a team of three consultants to explore the possibil-

Former Chief of Naval Air Warfare Division Joins Ryan

Vice Admiral Charles Frederick Coe, USN (ret.), former Director of the Air Warfare Division, office of the Chief of Naval Operations, has been appointed Assistant to the Vice President, Engineering and Military Relations at Ryan Aeronautical Company, President T. Claude Ryan announced today.

After a four weeks' indoctrination and orientation period in the plant under supervision of Bruce Smith, Vice President, Engineering and Military Relations, Adm. Coe will be stationed in Washington, D.C., in the interests of Ryan military projects.

During his two years as Director of the Air Warfare Division after one year as Assistant Director, Adm. Coe also was a member of the Military Liaison Committee to the Atomic Energy Commission.

ity of a package work simplification program for use in the European Command. A pilot study program was installed in the Munich Quartermaster Depot. As a direct result, the program then was instituted in nine Technical Service installations; later it was extended to all military posts in the Command. The program was implemented in three phases—a testing period, a dramatization period and a refinement period.

This three-phase procedure has been adapted for application through the Army as a whole. At present, most of the Army is completing the testing period, which includes preparation and distribution of new materials to the field. This will be followed by the dramatization period, where results and accomplishments are disseminated to portray the benefits. The refinement period will enable the Army to review its progress, to make refinements and enlarge its scope and field of endeavor.

It is a basic tenet of the Work Simplification Program that all military and civilian personnel should have the opportunity to participate in management improvement activities. At the same time, adequate recognition is to be accorded to everyone who develops an improved operation which results in economies, increased efficiency, or both. Suitable commendations, awards or other recognition is given to military personnel while civilians are entitled to cash awards and in-grade promotions. Of equal importance to the emphasis on recognition, is the fact that effective tools are provided to first-line supervisors which enhances their ability to more efficiently perform delegated duties and responsibilities inherent in supervision.

In the program carried out in the European Command several years ago some four thousand supervisors trained in the techniques of Work Simplification initiated more than four thousand ideas or proposals. More than sixteen hundred of these were adopted and put into effect the first year. The potential annual economies amounted to about two and a half million dollars. Cash awards of about twenty-eight thousand dollars were distributed (The program after six years is still going as strong as ever.)

This all happened in the first year of its operation in one command only. It strongly demonstrated the utility of the training methods. Namely that of coupling the informal conference techniques with a project. This enables the participants to solve work problems and install improvements during the training conferences. Now after several years we find it still going on showing even greater dividends. The real proof of a program is its ability to stand up under constant scrutiny for long periods of time and become stronger and stronger as time passes by.

From this humble beginning the program was tested in many other Commands, Posts, Camps and Stations. And each year more and more commands are starting to get the feel and basic philosophy behind the program. Time has strengthened the program and given it dignity and positiveness.

Issuance of Directives

As a result of these pilot testings the Management Division, Office of the Comptroller of the Army, set out to determine the types of work simplification techniques most applicable to a majority of operating problems in the Army. Initially, attention was focused on studies and related efforts already being conducted within the Army, particularly in the Administrative and Technical Services and the major commands. It was found that most such agencies had utilized wartime experience and had tailored their programs to meet specific needs. The techniques and program being utilized in several of the Federal departments and in numerous business and industrial organizations were also studied. Experts from civilian universities were consulted on the latest developments in work simplification. While it was found that the existing pattern of work simplification procedures differs little from that utilized during World War II, certain new designs in charts and minor improvements have since been added to facilitate integration of new techniques to specific operations.

As a result of its studies, the Department of the Army has issued Special Regulations 11-110-2 and Department of the Army Pamphlets DA 20-300, DA 20-301, and Graphic Training Aid GTA 20-100.

Special Regulations SR 11-110-2 outlines the purpose of the Work Simplification program and explains the program pattern and policies.

The regulation, while not mandatory, says in brief that to insure maximum participation of both military and civilian personnel in improving operating methods and procedures they should be instructed in the use, and learn to apply easily understood and proven techniques. Improvements in efficiency and economy of operating methods are attained by eliminating unnecessary steps, combining as many related steps as possible, simplifying those remaining, making certain that steps are performed in sequence using the most appropriate facilities.

Techniques referred to in SR 11-110-2, are described in DA pamphlet 20-300 "Techniques of Work Simplification". This pamphlet describes five simple techniques which have been adopted as an initial group. There are sound reasons for selecting these techniques. They have had large scale testing by the Army and are best adopted to the needs of the supervisors.

(*Continued on page* 42)

Television Helps Aircraft Industry

Television is helping America's fastmoving aircraft industry make today's huge and complex airplanes.

Tool makers at the Marietta, Ga., plant of Lockheed Aircraft Corporation are using a television camera and viewing screen to speed the making of large assembly jigs for the Air Force's new prop-jet C-130 Hercules transport—a 62-ton military air freighter.

Lockheed officials are openly optimistic over further application of closed circuit TV in speeding up tooling in the 100-acre manufacturing plant operated at Marietta for the U.S. Air Force. They point out that tooling is of increasing importance in production of advanced aircraft which are large in size and travel at high speed.

PRODUCTS

designed to deflate production Costs

As a service to OPERATING DEPARTMENTS and PURCHASING OFFICERS, ARMED FORCES MANAGEMENT will provide you with a selected list of manufacturers' products.

How to Use Armed Forces Management's Library—

Inserted in this issue, a postage free card is provided for your convenience in requesting descriptive and informative literature. This will be forwarded to you, without obligation. Many cost saving ideas are generated by Operating Departments that have referenced information on products available. Purchasing Officials will find this type of information invaluable. All that need be done is: fill in name and address, circle that which will assist you, and drop in the mail.

NEW SYNCHROFLASH TESTER

Ansco Division, General Aniline & Film Corporation. A simple, compact and inexpensive synchroflash testing device is now being supplied by Ansco. Originally intended for dealer use only, so many amateur and professional photographers have expressed a desire to own one of the instruments, the company has decided to manufacture it in sufficient quantities for general sale. Available at $7.50 complete, it becomes a "must" for your camera equipment set.

For more facts request No. 40 on reply card

SPEED CONTROL INSTRUMENT SYSTEM BROCHURE

Safe Flight Instrument Corporation. A new brochure is available which covers the Systems model SC-12 and SC-24 for single and multi-engine aircraft. Available at no cost and particularly informative for pilots, speed control instrumentation measures wing lift and provides a lag-free measurement that helps in ideally stabilizing an aircraft for precision landing approaches, landings, and take-offs.

For more facts request No. 41 on reply card

LOAD LIFTER ELECTRIC HOISTS

Manning, Maxwell & Moore, Incorporated. Are you interested in stepping-up handling speeds at your installation and saving money doing it? The new series "700" LOAD LIFTER electric hoist can do this for you. Capable of lifting a 1-ton load a foot in only two seconds, you get not only more lifts per hour, but this push-button work-saver, safety-engineered to protect man, load and hoist, has fewer parts, guaranteeing trouble-free performance with lower maintenance costs. Bulletin 410 is available without cost.

For more facts request No. 42 on reply card

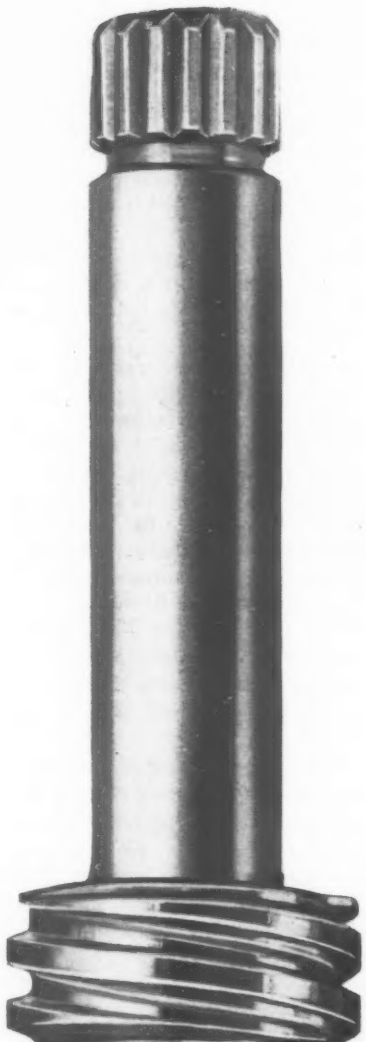
HEYER SPIRIT DUPLICATOR

Heyer Corporation. Automation in duplicating is here! Duplicating becomes a pushbutton automatic operation with 110 copies per minute and still at a fraction of a cent per copy. Clear, crisp copies of bulletins, form letters, rosters etc. . . . from postcard to 9 x 14 inch sheets . . . in fact, anything typed, written or drawn on the master, printed in one to five colors at once. Complete information is available on this low-priced automatic and other hand-operated models is available without cost.

For more facts request No. 43 on reply card

BELCO REPLACEMENT FAUCET STEMS

Miller Manufacturing Company. (See Cut.) Leaking compression type faucets, lost water and excessive maintenance costs are gone forever with the installation of Belco ball bearing replacement stems, complete with bibb washers. To insure perfect replacement, stems are made to order from a sample sent in by the purchaser—housing authority, military installation or institution. Stems include the Belco valve seat unit. The moment the rubber faucet washer contacts the seat its turning action stops and the ball bearing takes up the load, exerting non-turning pressure on the washer seat. The bibb washer is only under compression

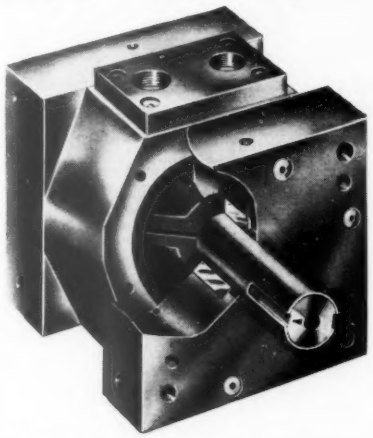


and is not subject to cutting or grinding action.

For more facts request No. 44 on reply card

NEW INSTANT OSCILLATING TORQUE MOTOR

Roto-Mation Motors Incorporated. (See Cut.) A completely new square shaped, instant oscillating torque motor, capable of obtaining up to 280 degrees rotation, or oscillation, of a shaft for the purpose of executing the following movements: turning, opening, closing, clamping, indexing, feeding, locking, pushing, mixing, or moving any type load or mechanism, has now been released for distribution. The Rotomation Motor, as this torque device is named, eliminates complex linkage, gearing, transmissions, reduction gears, racks and pinions, levers, cylinders, cams, Geneva motions and clutches. The motor operates with equal efficiency on air, oil, water, or fire-resistant fluid pressure mediums.



For more facts request No. 45 on reply card

KODAK LISTOMATIC CAMERA

Eastman Kodak Company. A new camera that brings a high degree of automation to the mechanical preparation of type listings for directories and similar material has just been announced by Eastman Kodak Company. Known as the Listomatic Camera Model 1, it is a camera which will rapidly photograph one, two, or three lines of typing from IBM or similar punched cards, at high speed, and in columnar form. Capable of automatically photographing typed information on cards at the rate of 230 photographs per minute, and being able to photograph three lines of type, this is the equivalent to 690 lines of type per minute. Using 400-foot rolls of special film, the new camera has been widely accepted by both industry and the military.

For more facts request No. 46 on reply card

AC'CENT MIRACLE FLAVORING

Frigidinner Incorporated (See Cut.) The amount of monosodium glutamate which should be added to achieve optimum flavor in rations will be learned at the end of a year-long series of tests of four precooked frozen menus prepared by Frigidinner for taste testing by the Quartermaster Food and Container Institute in Chicago. Ac'cent brand of monosodium glutamate was used in the tests, which determined that almost any way of adding is commercially feasible. The test was made at the request of the Air Force which at the moment is the prime user of frozen pre-cooked meals for long flights. Complete information as to the use of Ac'cent in military food applications is available.

For more facts request No. 47 on reply card

AUTOMATIC ELECTRIC STAPLING MACHINE

Staplex Company. (See Cut.) Available after ten years of research and testing, the new STAPL-A-MATIC offers many new features:—It holds 500 preformed staples . . . it reloads in 2 seconds with no tools required . . . it has a stapling reach of 9¼", which allows for center-stapling large sized booklets, folders, and is a real management tool in the saving of time and dollars. Operating on a simple, single contact solenoid principle, STAPL-A-MATIC cannot skip, repeat or jam. Completely portable, it will staple just as fast as work can be fed into the machine. Additional details, photographs and specifications are available upon request.

For more facts request No. 48 on reply card

RICHMONT TORQUE ANALYZER

Richmont Incorporated. The new Torque Analyzer for Power Screwdrivers guarantees a fast, accurate direct torque reading and indicates the area of trouble in defective tools without disassembly. Utilizing the principle of driving a stud in a nut against a sensitive pressure

Headed for the Rock Island Arsenal?

Then it's Davenport, Iowa for the best in hotel accommodations. Only five minutes from the Rock Island Arsenal. Three fine hotels to meet any budget requirement or desired accommodations.

- **Hotel Blackhawk—$4.50 and up**
- **Hotel Mississippi—$4.50 and up**
- **Hotel Davenport—$3.50 and up**

All rooms with bath

Under direction of the Blackhawk Hotels Company, Davenport, Iowa.

HOTEL Mississippi DAVENPORT IOWA

HOTEL Blackhawk DAVENPORT IOWA

HOTEL Davenport DAVENPORT IOWA

BLACKHAWK HOTELS

For more facts request No. 65 on reply card

gauge, this light-weight piece of equipment has proven to have a high degree of accuracy.

For more facts request No. 49 on reply card

HIGH PRESSURE FOG FIRE-FIGHTER

John Bean Division, Food Machinery and Chemical Corporation. A new catalog of John Bean Industrial Fire-Fighters has just been completed, and is available to military installations. The new HH-60-BFF is a large capacity version of the HH-40-BFF truck, which has aroused so much interest in industrial fire protection circles in recent months, and expands John Bean's complete line of mobile and stationary fire-fighters for in-plant use. All models provide the tremendous advantage of the original high-pressure fog system.

For more facts request No. 50 on reply card

SELF-DUMPING HOPPER

Koura Iron Works. The new self-dumping hopper which dumps itself . . . rights itself . . . and locks itself . . . enables one man with the new hopper attached to any lift truck, to cut hand unloading time by 50%. Capable of handling all types of bulky material, wet or dry, hot or cold, this simple-to-operate hopper can be attached or detached to a lift truck in three seconds. Would you like more descriptive information on this inexpensive money-saver?

For more facts request No. 51 on reply card

ENGINE HOUR METER

John W. Hobbs Corporation, (Stewart-Warner). A new "direct-reading" meter has just been added to the Hobbs line of engine hour meters which rounds out their meter production, long identified with pointer-type models. The new direct-reading meter is read in much the same way as the odometer in the speedometer of an automobile. Black figures show at a glance the total numbers of hours an engine has been operating; with a red figure at the right indicating tenths of hours. A rotating disc acts as an operating indicator, making one revolution a minute. Registering up to 10,000 hours, the new meter is small, compact and easy to install, and is available in three basic types and six voltages. A new catalog DC-580 is free on request.

For more facts request No. 52 on reply card

MH
MASSAGLIA HOTELS
JOSEPH MASSAGLIA, JR., President
Hotel MIRAMAR and Bungalows
SANTA MONICA, California
California's World-famous Resort—250 rooms
WILLIAM W. DONNELLY, Manager
Hotel SENATOR
SACRAMENTO, Calif.
The Capital's Premier Hotel—400 rooms
CHARLES W. COLE, Manager
Hotel EL RANCHO & Bungalows
GALLUP, New Mexico
World's Largest Ranch House—200 rooms
MARTIN L. HANKS, Manager
Hotel PARK LANE
DENVER, COLORADO
Magnificent Rocky Mountain View—400 rooms
CHARLES W. COLE, Manager
Hotel RALEIGH
WASHINGTON, D. C.
On Famous Pennsylvania Ave.—500 rooms
JOHN F. SCHLOTTERBECK, Manager
Hotel BOND
HARTFORD, Connecticut
Hartford's Finest—400 rooms
GRIFFITH R. DAVIES, Manager
Hotel SINTON
CINCINNATI, Ohio
Hospitality at its Best—700 rooms
JOHN SCHEIBLY, Manager
Hotel SHERWYN
PITTSBURGH, Pennsylvania
Center of Everything —400 rooms
MURREL F. VAUGHN, Manager
World-famed hotels—
Teletype service—Family Plan
For more facts request No. 66 on reply card

TELEVISION HARDWARE CATALOG

Television Hardware Manufacturing Company (General Cement Manufacturing Company). The new Telco Dealer Catalog No. T-57 offering a complete line of Television Hardware, is available without cost to interested individuals and installations. Offering the highest quality at the lowest possible prices, the new catalog offers you thousands of items complete with pictures, specifications and prices.

For more facts request No. 53 on reply card

PAVING SEALER

Presstite Engineering Company. Presstite No. 99 is the product identification of a jet-fuel, blast-and-heat-resistant paving joint sealer developed for airfields in compliance with Federal Specifications SS-S-170. Designed for sealing sawed and formed joints in Portland Cement Concrete, the new cold applied sealant is fabricated and supplied in two components: (1) a base (liquid) consisting of synthetic rubber, suitable plasticizers, vulcanizing agents, activators and inert fillers, and (2) a curer (dry) consisting of accelerators blended with suitable extenders. Furnished in convenient, factory-packaged units in correct proportions, they eliminate the need for measuring, weighing or guesswork in the field. When properly applied and cured, this inexpensive compound is resistant to solvent action of jet fuel, to the super-elevated temperatures produced by the exhaust blast of jet turbines, and to the terrific blast of high engine thrust. A new 6-page bulletin describing Presstite No. 99 is available on request.

For more facts request No. 54 on reply card

TRANS-ATOMIC TRANSISTOR RADIO

Superex Electronics Corporation. Here, for less than $10, is an ideal Christmas gift for the military hobbyist. A small, compact (fits in palm of your hand) transistor radio with loud and clear reception which will work for months on ordinary flashlight batteries. Complete with all parts and clear detailed instructions, only a screwdriver is needed for assembly. Featuring the world famous "loopstick" for long range reception, the model TTR comes in a beautiful unbreakable plastic case with precision slide rule tuning dial.

For more facts request No. 55 on reply card

PORTABLE ALL-YEAR MAINTENANCE MACHINE

Jari Products Incorporated. Addition of a special raker bar that quickly cuts up heavily packed or deeply piled snow is a feature of the new Champion Snow Thrower, built and guaranteed for two years by Jari Products, for clearing sidewalks, driveways and other areas. The new rotary type machine is self-propelled and powered by a 4 cycle, 2½ hp gas engine, designed to clear a path 20 inches wide through any depth or type of snow at a rate of 520 shovelfuls per minute. Weighing but 206 pounds attachments are available to make it an all-year maintenance machine. More details are on file for this

low-priced equipment and will be forwarded to interested individuals and organizations.

For more facts request No. 56 on reply card

TAPE RECORDING EQUIPMENT

Ampex Corporation. The new Ampex 610 and 612 offer the best in recording equipment for broadcast or recording studios and military applications. Priced moderately, both of the new recorders have all of the extraordinary quality and reliability of the Ampex 600. The Ampex 610 plays half-track and full-track tapes and the 612 plays these and two-track sterephonic as well. Proven of exceptional value in instruction and message recording, complete information is available on request.

For more facts request No. 57 on reply card

AUTOMATIC LOADERS

Barber-Greene. An unmatched method for moving material from stockpile to truck, designed to handle any free-flowing bulk material in one fast-moving stream, has been announced by Barber-Greene. Easily converted to snow-removal operation, these low-priced versatile machines represent the latest in design and manufacture. Complete information without obligation which may assist your organization in the savings of many dollars, is on file for you.

For more facts request No. 58 on reply card

INSTITUTIONAL EQUIPMENT CATALOG

Clark Company. One of America's foremost distributors of institutional equipment, has introduced an exciting new king-sized wholesale catalog which features nationally advertised institutional supplies, gifts and housewares. Consisting of more than 320 illustrated pages and offering discounts up to 60%, is offered without charge to purchasing officers in organizations and exchanges.

For more facts request No. 59 on reply card

BEACON LIGHT

Federal Sign and Signal Corp. The Federal Beacon Ray light flashes bright red through a full 360-degree arc, warns while moving or parked. Military units using it have set new safety records.

For more facts request No. 60 on reply card

VISUAL MANAGEMENT CONTROL

Graphic Systems. This New York firm invites men interested in efficient management to get things done with Boardmaster Visual control which gives a graphic picture of operations, spotlighted in color, saves time, money, and stops errors.

For more facts request No. 61 on reply card

MANAGEMENT COUNSEL

Lester B. Knight & Associates, Inc. Experienced management counsel and specialized services to Armed Forces Management is offered by Knight engineers. If your operation will benefit by highly specialized skills in financial management, paperwork management, management controls or plant engineering, a Knight representative will call upon your inquiry.

For more facts request No. 62 on reply card

MUTUAL INVESTMENT FUND FACTS

Brown, Madeira, and Company. This company, specializing in mutual investment funds, will send, without obligation, facts about conservative, middle-of-the-road, and aggressive types of investments and mutual funds.

For more facts request No. 63 on reply card

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NATION'S DEFENSE SYSTEM

COMMON STOCK INVESTMENT

Hamilton Management Corp. Through Hamilton Funds, Inc., a managed common stock investment fund, this firm offers lump sum or monthly investment plans to fit any budget. Interested persons can inquire without obligation. Firm recently declared another quarterly dividend.

For more facts request No. 64 on reply card

Supersonic Missile Cruiser Joined Fleet November 1

Washington (AFPS)—The Navy's first guided missile cruiser, the converted Boston, was recommissioned in ceremonies at the Philadelphia Navy Yard Nov. 1.

The Boston is the first combat ship which fires supersonic anti-aircraft guided missiles.

The Navy said that the Boston, sixth navy ship to bear that name, will chiefly fire the Terrior, a needle-nosed anti-aircraft missile.

She is the first of two guided missile cruisers being converted by the New York Shipbuilding Corp. Her sister ship, the Canberra, will join the fleet next spring.

Work Simplification

(*Continued from page 37*)

The five techniques used in DA pamphlet DA 20-300 are described as follows:

a. The work distribution chart is a systematic tabulation of the various tasks performed by the individuals in an organization classified in accordance with the major activities of that organization. Work and time required is graphically portrayed by organization and individual so that after analysis, necessary operations, work load and output measured in manhours are reflected on an "After-Chart".

b. The flow process chart traces and highlights the flow of productive effort. The chart records the work steps involved in a procedure so that it is possible to identify duplicated effort, back-tracking, and other obstructions to the free flow of work.

c. The work count indicates the effect of relative volume of an operation upon the methods used.

d. Motion economy describes the area in which an individual can work efficiently, and the principles to be followed in accomplishing tasks with a minimum of physical effort.

e. Layout studies indicate the relationship of the layout of work facilities to work methods.

To further assist the field in implementing SR 11-110-2 and DA pamphlet DA 20-300 an additional pamphlet DA-301 "Work Simplification in Action" was published. This pamphlet outlines a plan for teaching supervisors to use Work Simplification techniques. It describes materials needed for coordination, installations and conduct of a Work Simplification Program. The material in the pamphlet is to be used in three main ways:

(1) To assist on the conduct of courses for instructors in Work Simplification (3 days).

(2) To guide the conduct of appreciation meetings for top and middle management (one to two hours).

(3) As instructional material in conduct of conferences, laboratory and follow-up work in teaching supervisors the techniques of Work Simplification (three lectures and three laboratory periods—minimum 2 hours each).

Mention should be made of Graphic Training Aid consisting of 98 large 30" by 40" charts. This group was completed to give the field a training aid to assist in selling the program to supervisors and to help in the instructional phases of the program.

All the Army Work Simplification materials can be purchased by writing to the Superintendent of Documents, Government Printing Office, Washington 25, D.C. or can be obtained through regular Army supply channels.

It might be well to mention also the fact that the use of films is encouraged. The Army has recently distributed a new film called TF 20-1736 "Introduction to Work Simplification". This is one film in a series of three that is used to sell the program to all echelons of command. The latter two films are finished and have been distributed to the field. The use of films is only barely started. It is contemplated that as time goes on a greater emphasis will be placed on filming the thousands of examples that are available in the field to show management improvements at the time they are made or even before they are made so they can be used to encourage more examples.

Average and Accomplishments

We now come to the most important part of the whole program. Has all this been worthwhile? What has been the return on the investment?

Without going into much detail let us say reporting on results have been kept to a minimum since we did not want to burden the field with additional paper work but we have insisted on a *tangible return.* As it seems to come out well over ten to one for every manhour or dollar spent on the program. What other program shows this kind of a return?

Let's look at the over-all results of just one year's activity. During FY 1954 there were 500 installations in the Army with Work Simplification Programs. 25,197 persons received instructions with 13,439 tangible installed improvements recorded. This amounted to total benefits of over $14,650,441. This does not include thousands of intangible improvements.

Observations on W/S Report for FY 1954

1. During FY 1954 there were 25,197 individual studies made by supervisors of their own units. This means 12 hours class and laboratory work and many hours more, by each supervisor creating, thinking and doing something about improving the work of his unit. This is Management Engineering in action. This helps toward realization of the three main objectives of W/S—

(1) Every supervisor to understand and use selected management engineering techniques in his own unit.

(2) Installation of improvements. (13,439)

(3) Make working papers available for ready reference. These working papers (work distribution charts, process charts, layout studies) give a picture of the work being done in the unit.

II. Where W/S has been in effect for a long period of time there is more return on the investments.

III. Accomplishments are usually in proportion to the original investment.

IV. Accomplishments are realized in proportion to the number of visits by headquarters personnel to field offices.

V. There are a few indications of relatively low return on investment as compared to the over-all average return, of better than 10 to 1.

VI. It is refreshing to note that W/S gives a little dose of concentrated management engineering know-how to a lot of people in contrast to giving wide and varied management indoctrination to relatively few people. W/S is *bottom-up* management in action. *It instills a profound respect for efficiency and the elimination of waste in day to day operations.*

The Army has taken up the crusade seriously to bring scientific management to every Army supervisor, both military and civilian, in an effort to eliminate waste and inefficiency on the operating level. The program does not attempt to make "earth shaking" changes from the top but does seek thousands of small improvements at the lowest level. It does this by giving oper-

ating supervisors techniques for self analysis and improvement. Thousands of small improvements add up to an impressive total.

Highlights of Accomplishments For One Year Only

During FY 1954, main emphasis was in visiting with and work with the Continental Army Commands and Technical Services. Clinics were held where problems were discussed and remedial actions were worked out to insure better understanding of the program. Publicity was given to the program in thousands of local publications all over the Army to assist in selling the program to top management. 3 twenty - minute films were completed called "Introduction to Work Simplification TF 20-1736," and W/S in the shop (TF 20-1738) and TF 20-1734 W/S in the office, FY 1954 was a year of smoothing out the basic instructional materials and getting them distributed to the field. Now that this has been accomplished it is found, in analyzing the accomplishments, that every major command has a program in action even though they are in varying degrees of effectiveness.

WHAT NEXT—During FY 1955 emphasis was placed on the following.

(1) Field visits to assist commands that are just starting in the program.*

*The writer of this article has just returned from a 22,000 mile trip to four major commands (Alaska, Far East, Hawaii, San Francisco), and 28 field installations where 34 individual classes or meetings were held to discuss problems and recommendations. The people in the field installations reviewed their current programs and discussed ways and means to strengthen and bolster the attack on waste and inefficiency, in all operations at all levels of command.

(2) Additional clinics and conferences will be held for installations not yet included in past meetings.

(3) FY 1955 was a year of "follow-up" to insure a return on the investment. Refresher courses were conducted where necessary.

(4) Emphasis will be placed on having more supervisors make the "Handbook," for individual working papers, as mentioned in DA Pamphlet 20-300, page 21, para 31.

This "Handbook" contains the basic working papers developed by each supervisor during the instructional and laboratory periods. These working papers are to be kept current and in presentable condition at all times for use as an analyzing medium and for use by visiting survey personnel.

(5) Additional W/S materials was sent to the field to show the latest developments in W/S.

(6) During FY 1955 there will be a gradual but constant pressure to make W/S become an intrinsic part of everyday operations. Lip Service to the program is tabooed. Passive acquiescence will be replaced by positive and dynamic action. FY 1955 will be the time for W/S to become matured as a step toward understanding the statement "There is always a better way to do the job."

CONCLUSION

As can well be imagined from the facts in the foregoing report on accomplishments, there are thousands of case studies that could be discussed to show how Work Simplification has really taken hold in the Army.

The *real* meat of the program is to put working tools into the hands of the operating people to improve their operations and to document the unit for review by survey teams, inspector generals and visiting officials. This causes thousands of individual surveys of work units by the supervisors themselves. To accomplish this monumental task it was necessary to launch a crusade. This crusade was similar to one put on years ago by Dr. Bennett in the Soil Conservation Service. This country was losing much of its top soil by wind and water erosion. One of the most valuable assets of the country was being blown and washed away. A crusade was started to bring scientific farming practices to the farmer to assist him in combating this fearful waste of our most precious top soil. The farmers were taught the use of contour furrowing, terracing, strip cropping and other scientific farming practices. What farmer could now survive if he didn't use these modern practices today? The crusade was brought to the first line fighter, the farmer himself.

Current Crusade In Work Simplification

Now we are bringing the crusade to the first-line supervisor—not scientific farming, but scientific management. The objective is to combat the most precious waste of all our resources—not top soil, but that of *manpower*. The attack is again a two-edged sword—an effort directed not only at waste resulting from failure to improve operations and productivity, but particularly waste of ability remaining latent in every person. We are putting tools and techniques into the hands of the Army supervisors for scientific improvement of their work. We are challenging their latent analytical and creative ability. We are firmly convinced that the time will come when the use of the work distribution chart, the flow process chart. layout studies and similar techniques will be as much a part of the supervisors work as the principles of terracing and contouring are to the farmer.

This crusade besides putting scientifiic management tools into the hands of first-line supervisors, opens up the way for the Army to realize thousands of improvements and see a tangible return at the rate of 10 to 1 on its investment. It creates a vast cadre of trained Junior Management Engineers. It makes "bottom-up management" mean something. It places the "working papers" at the disposal of overall survey teams and proves that dynamic and enthusiastic action can work as a two-edged sword to whack up and down for continued efficiency and economy in operation. As each supervisor becomes imbued with the simplified approach to problems of waste motion, non-productive effort and improper utilization of manpower, materiel and money, a dynamic force is released. Each job becomes a challenge to creative effort. Translated into practical achievements, the Work Simplification Program is a story of gadgets, of men and ideas, of a scrap pile that has saved thousands of dollars, of work-saving devices and equipment which were unheard of just a few years ago. Most impor-

tant, it is the story of men who "take their jobs home with them at night in their heads." Maximum resourcefulness—the results of many minds working together as one team—is one of its lasting by-products.

Many of the improvements are small in themselves; but thousands, taken together, make an impressive total of manhours and resources saved. With the proper command support, a means to measure and evaluate accomplishments, plus a top-management show of appreciation—the Army Work Simplification Program—which is just beginning to demonstrate its potentialities—will produce even greater results.

North American Opens Rocketdyne Division After 10 Years of Research

LOS ANGELES—After nearly ten years of extensive research and development of rocket engines, North American Aviation today established the Rocketdyne Division as a separate group to carry on continued research, development and manufacture of high powered rocket engines and related items.

The Rocketdyne Division is the outgrowth of the company's Propulsion Center which in recent years has gained a reputation as one of the country's outstanding groups in the design, development and manufacture of large liquid propellant rocket engines.

"Creation of the Rocketdyne Division," J. H. Kindelberger, Chairman of the Board said, "marks continued progress of our work in this field. We now are manufacturing engines for a number of missile programs and recently signed a license agreement with Rolls-Royce, Ltd., for manufacture of North American-designed rocket engines in Great Britain in support of the Wilson-Sandys Collaboration Agreement on guided missiles between the United Kingdom and the United States."

Besides its work in large rocket engines, the division also is engaged in the development of armament rockets for aircraft and basic research on propellants, combustion and in other related fields. North American entered this field in 1947 as part of its program of guided missile development.

Index to Advertisers

Blackhawk Hotels ..... **Page 39**
Noted for their excellent service and matchless cuisine, the Mississippi, Davenport and Blackhawk hotels in Davenport, Iowa, the Saint Paul and Lowry in St. Paul, Minnesota, and Hotel Jefferson in Peoria, Illinois, are popular with services personnel traveling thru the Midwest.

Brown Madeira and Company ..... **Page 25**
This leading investment firm, specializing in mutual investment funds, offers investment information without obligation.

Convair Division of General Dynamics Corporation ..... **Cover 4**
The Bureau of Ordnance facility at Pomona, Calif, managed and operated by Convair, is an outstanding example of government and industry working together to produce weapons systems for our nation's defense.

Crosley Division,
AVCO Manufacturing Corporation ..... **Cover 2, Page 1**
Avco defense and industrial products combine the scientific skills, and production facilities of 3 great divisions to produce power plants, electronics, air-frame components, and precision parts.

Curtiss-Wright Corporation ..... **Page 2**
Curtiss-Wright's propeller division relates statistics about its turbo-electric propellers manufactured for major U.S. turboprop engines.

Federal Sign and Signal Corporation ..... **Page 17**
Is the maker of the Beacon Ray light. Military sub-divisions using it have set new safety records.

Graphic Systems ..... **Page 29**
Men interested in efficient management are invited to write this New York firm for information on its Boardmaster Visual control board to save time and money and prevent errors.

Hamilton Management Corporation ..... **Page 31**
Hamilton Funds, Inc., is a managed common stock investment fund offering lump sum or monthly investment plans to fit any budget.

Lester B. Knight and Associates, Inc. ..... **Page 13**
Experienced management counsel and specialized services to the Armed Forces Management groups are available from this firm with an outstanding record of achievement in its field.

Lockheed Aircraft Corporation ..... **Page 21**
Lockheed's Georgia division displays its turboprop USAF Hercules, its mobile troop transport capable of loading 64 fully equipped paratroops four abreast through the rear door ramp.

Massaglia Hotels ..... **Page 40**
The world-famous eight-hotel chain of Massaglia, from coast to coast, offers the best in hotel housing, a family plan. Hotels are located in Washington, D.C., California, New Mexico, Colorado, Connecticut, Ohio, and Pennsylvania.

Miller Manufacturing Company ..... **Page 23**
You can save more than $1.00 per year per faucet by equipping leaky faucets with inexpensive Belco ball bearing washers.

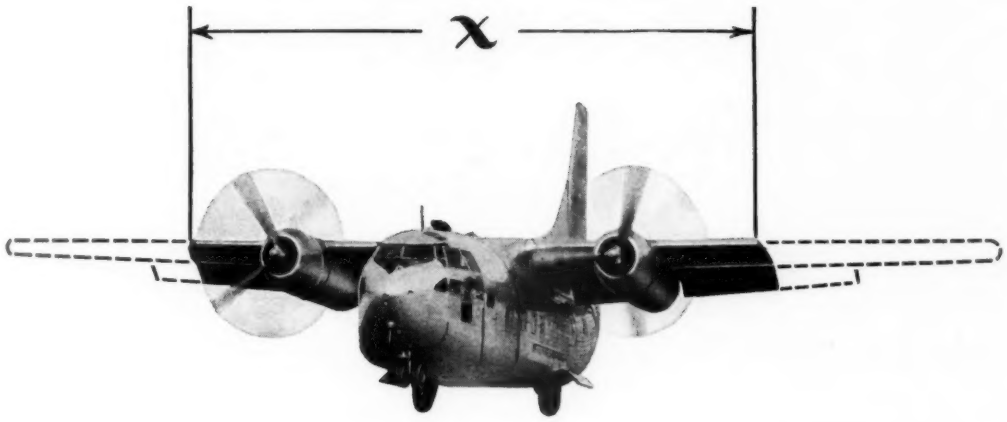
Republic Aviation ..... **Page 4**
This firm's F-84F Thunderstreaks strengthen more than ever the power and versatility of the Strategic Air Command.

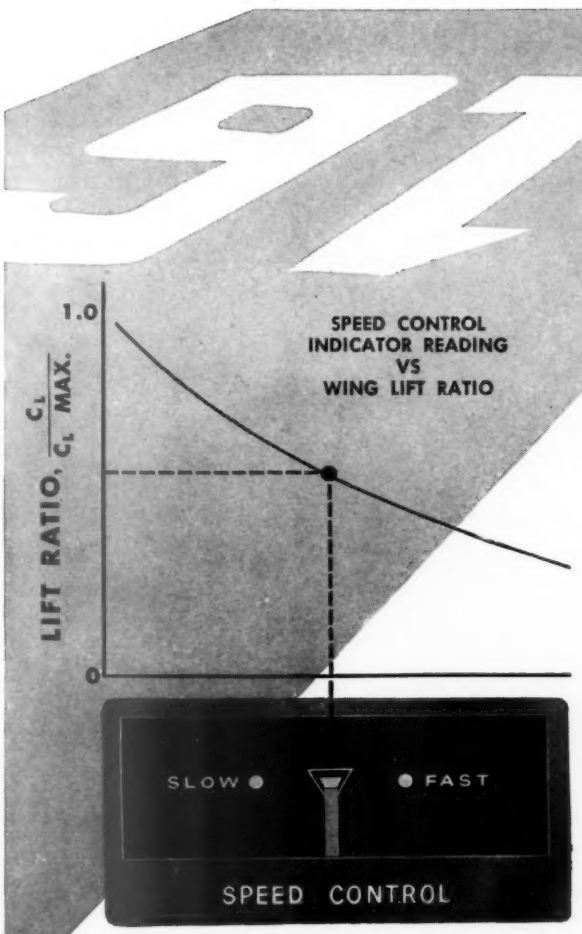
Safe Flight Instrument Corporation ..... **Cover 3**
The Safe Flight Speed Control System enables safe utilization of full wing lift for perfectly controlled minimum speed landing.

Air Training Command schools in the USAF graduated 98,500 airmen technicians during FY 1954.

The Pentagon, largest office building in the world, is supported by 41,492 concrete piles resting on man-made earth fill.

How much* of the available WING LIFT are YOU using?





Statistics show that less than one half of the available wing lift is being used for the average landing.

The Safe Flight Speed Control System enables you to utilize safely the full wing lift by zeroing-in a perfectly controlled minimum speed landing every time. Very significant advantages are achieved for both jet and propeller driven type aircraft. The Speed Control System presents lag-free rate and trend information which is easy to follow for precise elevator and power control. It automatically compensates for every configuration, weight, and power condition. Approaches, regardless of turbulence or weather conditions, are made precisely, more safely, and with less effort. This system also insures best take-off climb performance.

The Safe Flight Speed Control System is now standard equipment on all Fairchild C 123B aircraft.

**Unused wing lift means longer runway requirements, lower payloads, excessive brake and tire wear, and possibility of overshoots.*

SAFE FLIGHT INSTRUMENT CORPORATION
WHITE PLAINS, NEW YORK

"Pioneers in Lift Instrumentation"

For more facts request No. 67 on reply card

ORDNANCE EXTRAORDINARY! The Terrier, the Navy's new all-weather anti-aircraft missile, is now being produced in quantity by Convair in the Naval Industrial Reserve Ordnance Plant of the U.S. Navy's Bureau of Ordnance. Responsible for supplying our Navy with the most effective weapons, the Bureau of Ordnance participates in vast programs of research, development, testing, and procurement. The Bureau of Ordnance facility at Pomona, California, managed and operated by Convair, is an outstanding example of government and industry working together to produce weapons systems for the defense of our country.

CONVAIR

A DIVISION OF GENERAL DYNAMICS CORPORATION

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